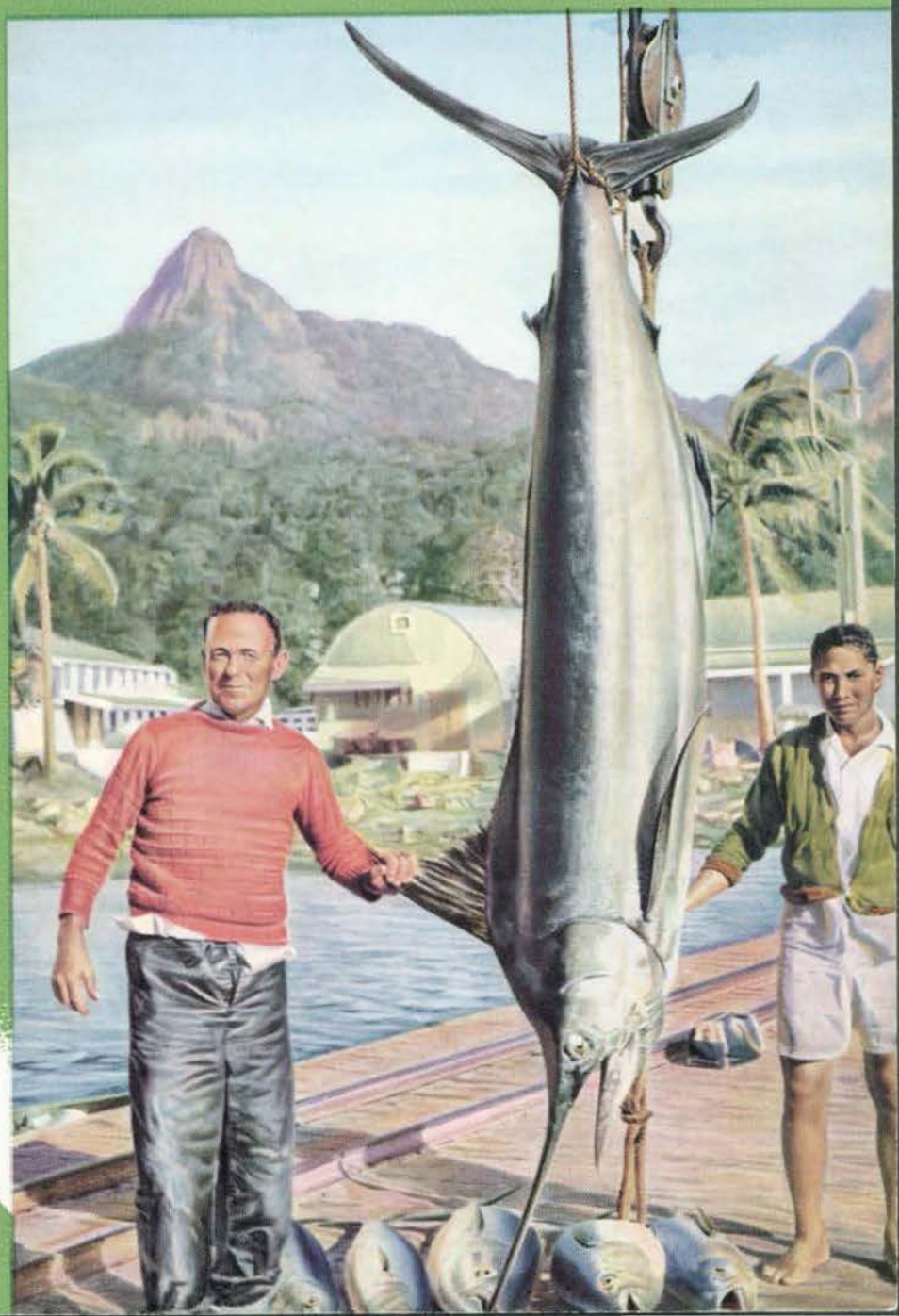
South Pacific bulletin



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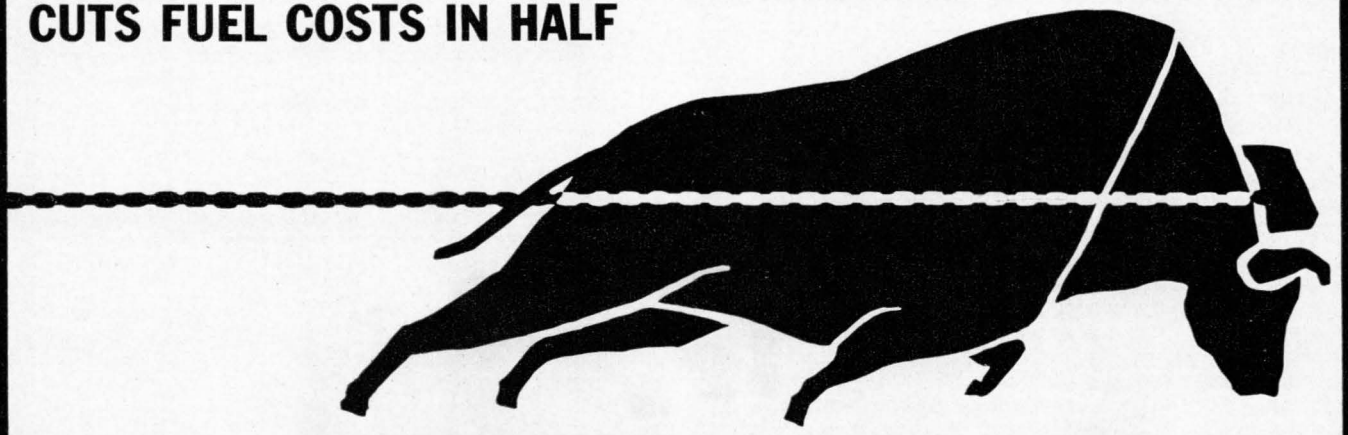

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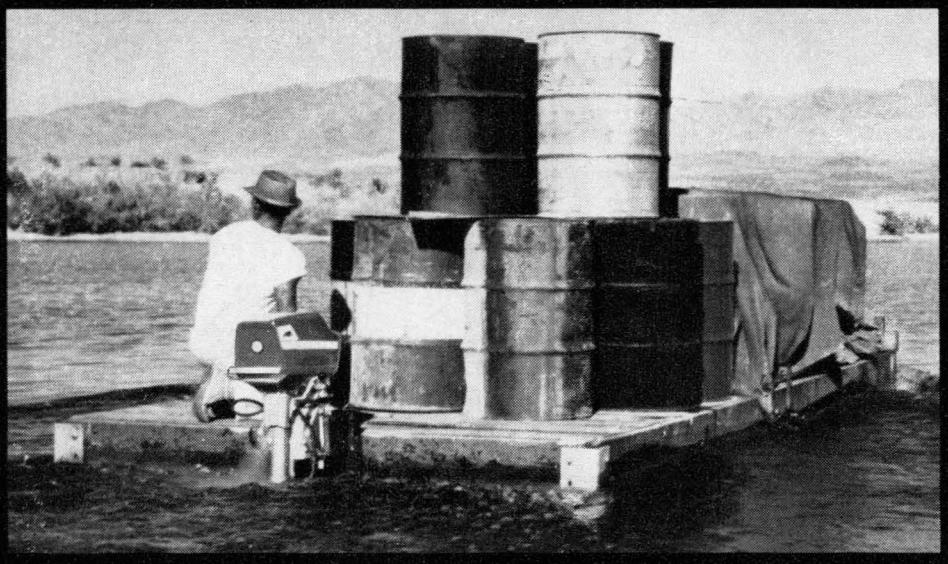

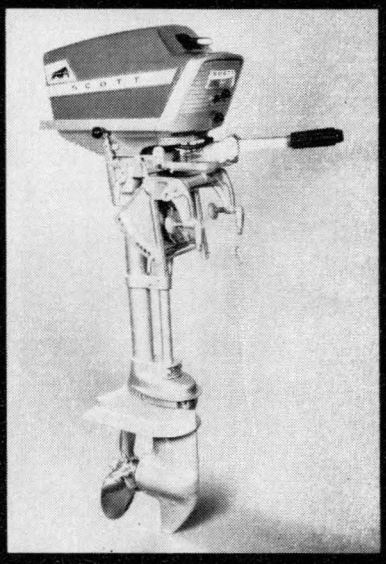

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The South Pacific Commission

The South Pacific Commission is an advisory and consultative body set up in 1947 by the six Governments responsible for the administration of island territories in the South Pacific region (Australia, France, the Netherlands, New Zealand, the United Kingdom and the United States of America).

The Commission's purpose is to advise the participating Governments on ways of improving the well-being of the people of the Pacific island territories. It is concerned with health, economic and social matters. Its headquarters are at Nouméa, New Caledonia.

The Commission consists of not more than twelve Commissioners, two from each Government. It normally holds one Session each year. There are two auxiliary bodies, the Research Council and the South Pacific Conference.

There is a Research Council meeting once a year. This may be either a meeting of the full Council, or of one or other of its three main sections, specialising in the fields of health, economic development and social development. Members of the Research Council are appointed by the Commission. They are selected for their special knowledge of the questions with which the Commission is concerned, and the problems of the territories in these fields. The chief function of the Research Council is to advise the Commission on what investigations are necessary. Arrangements to carry out those that are approved are the responsibility of the Secretary-General and other principal officers.

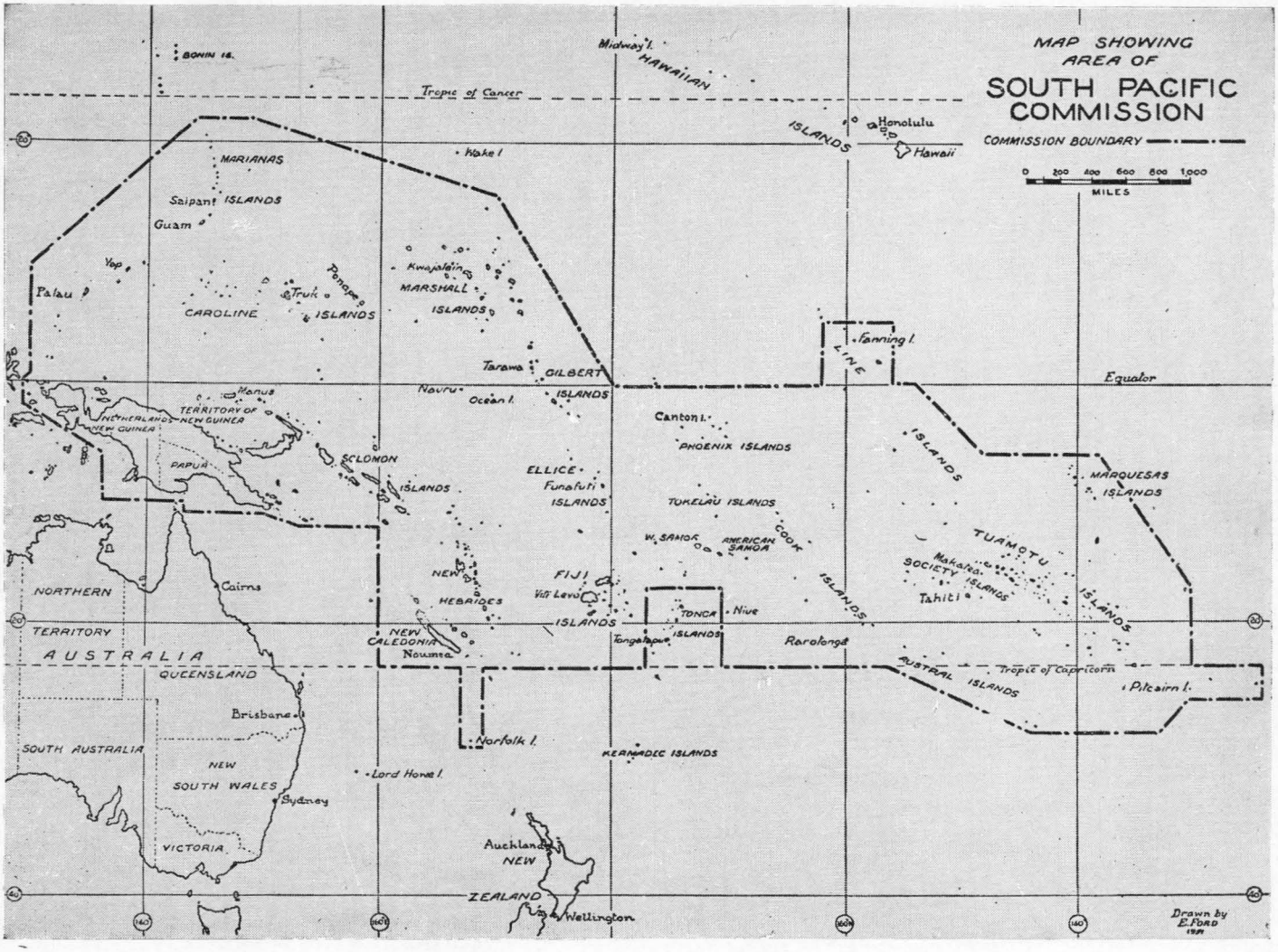
The South Pacific Conference, which meets at intervals not exceeding three years, consists of delegates from the local inhabitants of the territories, who may be accompanied by advisers. The first Conference was held in Fiji in April 1950, and was attended by delegates from fifteen territories and from the Kingdom of Tonga. The second Conference was held at Commission headquarters in April 1953. The third Conference was held in Fiji in April-May 1956, and the fourth Conference in New Britain in April-May 1959.

The principal officers of the Commission are: Secretary-General, Mr. T. R. Smith; Executive Officer for Social Development, Dr. Richard Seddon; Executive Officer for Economic Development, Dr. Jacques Barrau; Executive Officer for Health, Dr. Guy Loison. The powers and functions of the Deputy Chairman, Research Council, are exercised by the Secretary-General.

FRONT COVER PHOTOGRAPH

This Pacific blue marlin weighing 238 pounds was taken off Rarotonga by Fisheries Officer Ronald Powell of the Cook Islands (on left in photograph) and his assistant, Ioapa Marsters (right).

Marlin are apparently plentiful in Cook Islands waters. Last January, while experimenting with a twenty-basket, hundred-hook Japanese type floating longline, Mr. Powell took seven in five days—together with one yellowfin tuna, four dolphins, and twelve sharks.



SOUTH PACIFIC BULLETIN

VOL. 12, No. 2 APRIL, 1962

CONTENTS

EDITOR: *A. E. Read, B.Sc.*

THE SOUTH PACIFIC BULLETIN, first published in January, 1951, features articles on selected activities in the Commission's three main fields of operation: economic development, health and social development. Articles are also contributed by specialists working in these and related fields, in the territories within the Commission area.

THE BULLETIN is given selective world distribution to people and institutions in widely differing fields sharing a common interest in the purposes and work of the Commission. It is published in two editions, English and French.

SUBSCRIPTIONS and orders for single copies should be directed to: South Pacific Commission, Box 5254, G.P.O., Sydney, Australia. Subscription rates are given in the Table below.

ALL OTHER ENQUIRIES relating to the SOUTH PACIFIC BULLETIN should be directed to: The Editor, South Pacific Commission, Nouméa, New Caledonia.

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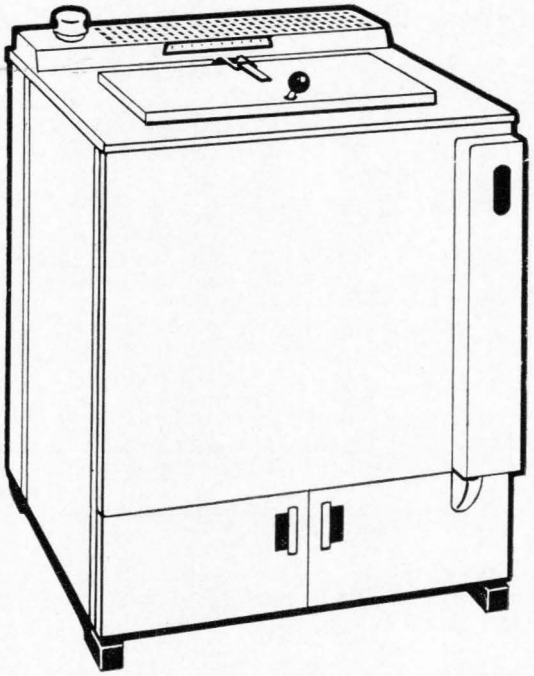

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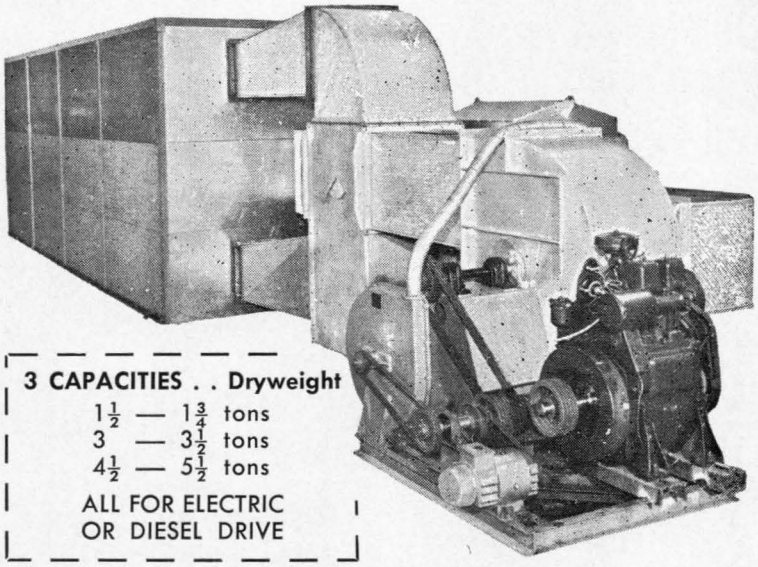

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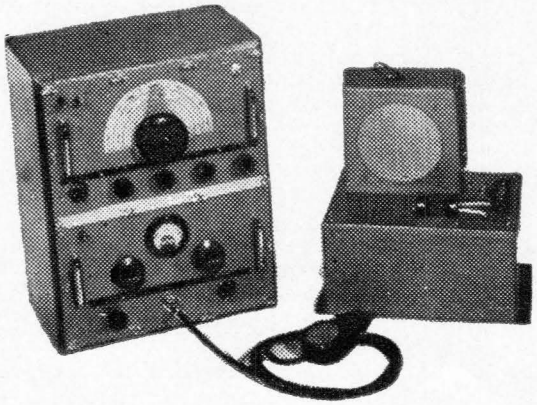

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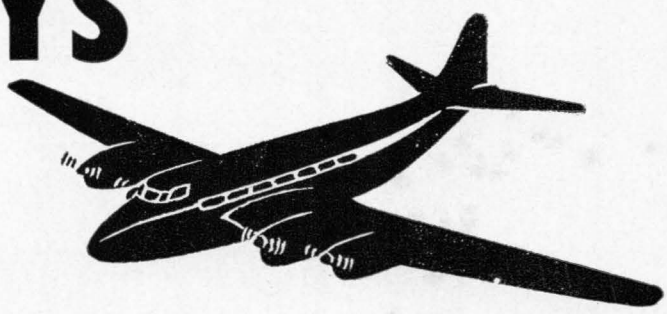

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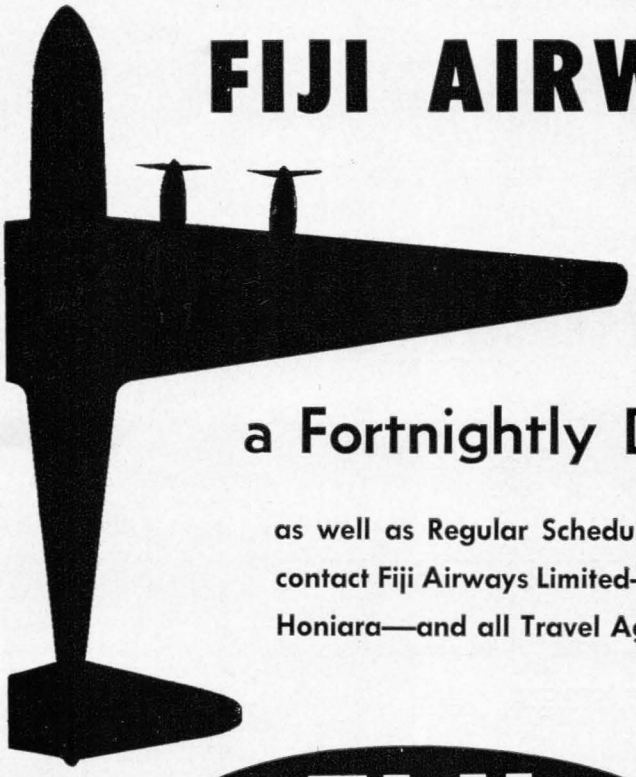

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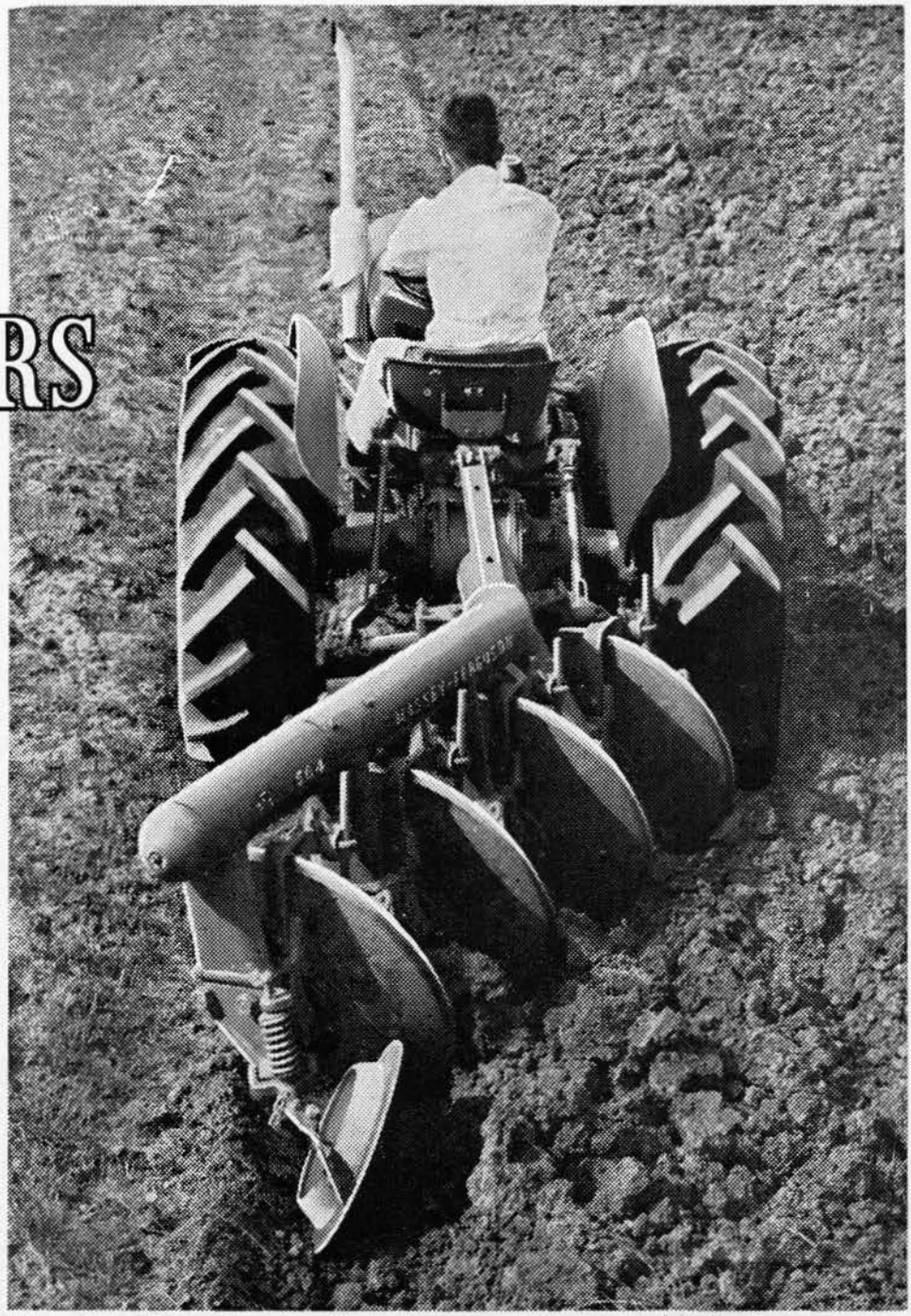

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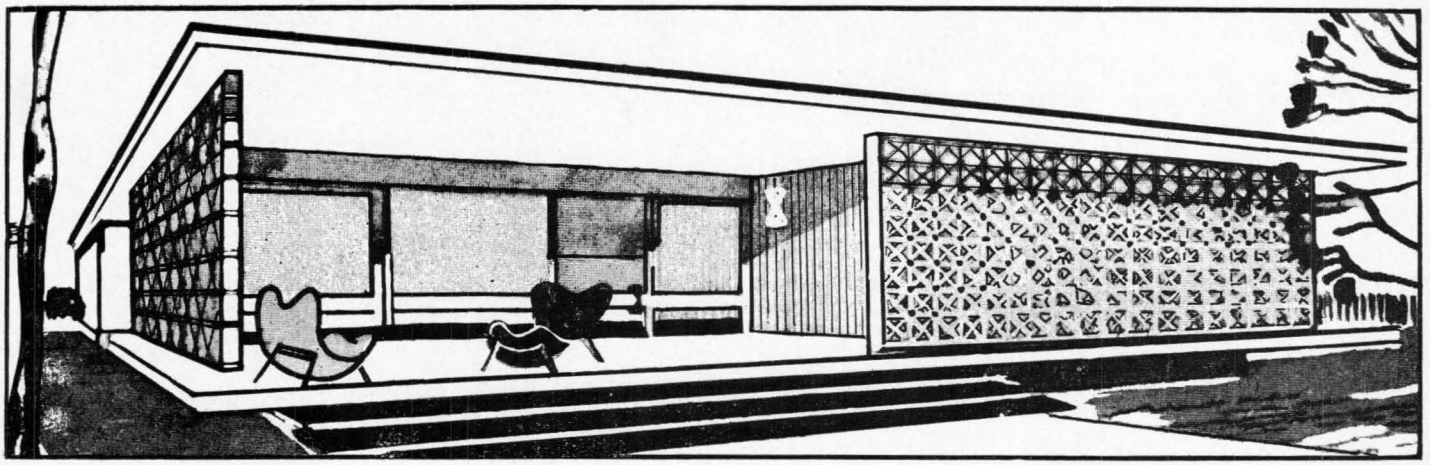

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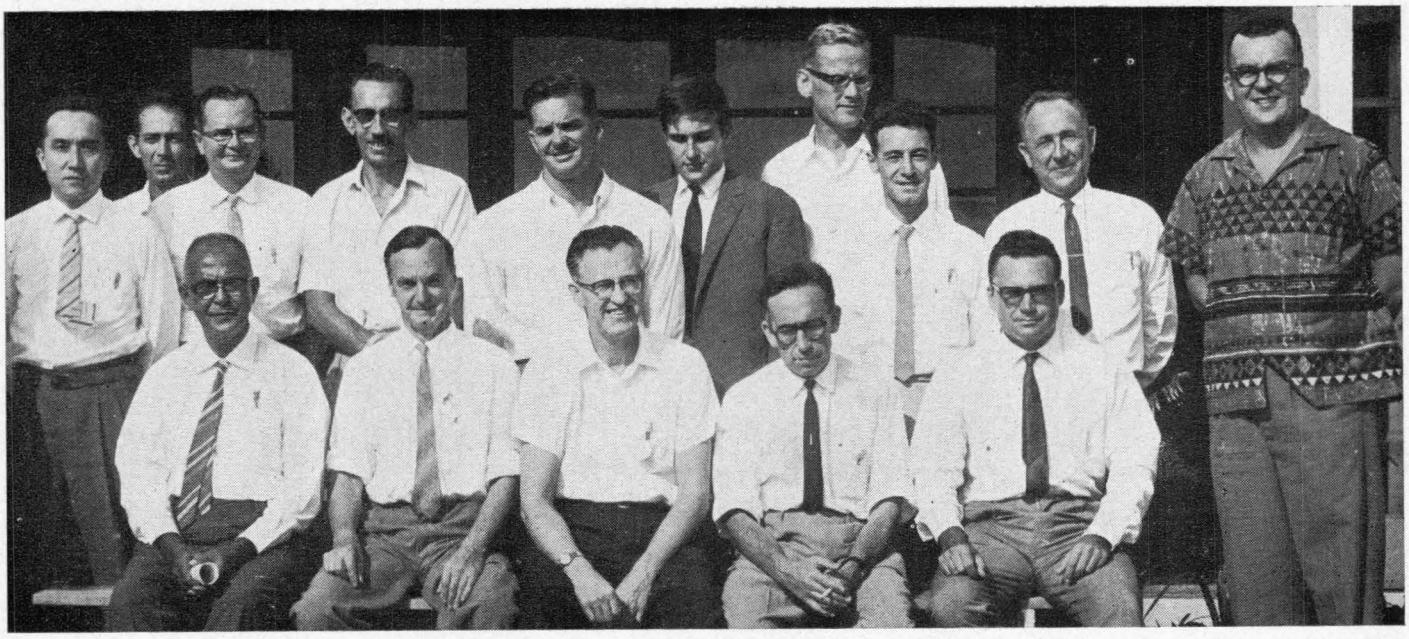


SPC FISHERIES TECHNICAL MEETING PARTICIPANTS. Front row (l. to r.): Mr. W. A. Mackenzie (Netherlands New Guinea), Dr. A. M. Rapson (Papua and New Guinea), Dr. V. E. Brock (United States—Chairman), Dr. G. L. Kesteven (Australia), Mr. J. Domard (French Polynesia). Back row: Mr. Y. Sawamura (Tonga), Mr. L. Devambez (SPC), Mr. K. J. Garnett (Fiji), Mr. J. A. Tubb (FAO), Mr. P. T. Wilson (United States Trust Territory), Mr. Y. Magnier (New Caledonia), Mr. J. de Vries (Netherlands New Guinea), Mr. M. Aylett (British Solomon Islands), Mr. R. Powell (Cook Islands), Dr. J. Barrau (SPC).

SPC Fisheries Programme Re-Shaped

The South Pacific Commission's ten-year-old fisheries programme was reviewed and re-shaped by thirteen fisheries experts at a meeting held at SPC headquarters during February.

WITH the main purpose of studying and re-shaping the Commission's ten-year-old programme for developing fisheries in the region, a fisheries technical meeting was held at South Pacific Commission headquarters in Nouméa from February 5-13.

Thirteen fisheries experts attended from nine Pacific territories, the United States and Australia, and from the Food and Agriculture Organization of the United Nations and the Indo-Pacific Fisheries Council. Dr. Vernon E. Brock, Director of the Biological Laboratory, United States Bureau of Commercial Fisheries, Washington, was chairman. The meeting was organized under the direction of the Commission's executive officer for economic development, Dr. Jacques Barrau.

In opening the meeting on February 5, the Commission's Secretary-General, Mr. T. R. Smith, briefly reviewed the Commission's past activities in the fisheries field. "We have been concerned", he said, "with small-scale surveys, with training of fishermen, with the introduction of new species of freshwater fish, with advice on the establishment of territorial fisheries services, with some problems of

SPC FISHERIES TECHNICAL MEETING: Participants

SPC FISHERIES ADVISORY COMMITTEE MEMBERS

Dr. Vernon E. Brock	Bureau of Commercial Fisheries, Biological Laboratory, Jackson Place, N.W., Washington, D.C., U.S.A.
Dr. G. L. Kesteven	Assistant Director (Fisheries), CSIRO, Division of Fisheries and Oceanography, Cronulla, N.S.W., Australia.
Mr. M. Legand	Oceanographe Biologiste, Centre de Recherches Oceanographiques, Institut Francais d'Oceanie, Noumea, New Caledonia.
Dr. A. M. Rapson	Director, Division of Fisheries, Department of Agriculture, Stock and Fisheries, Port Moresby, Territory of Papua and New Guinea.

MEMBERS OF TERRITORIAL FISHERIES SERVICES

Mr. M. Aylett	Fisheries Officer, Honiara, British Solomon Islands Protectorate.
Mr. J. Domard	Chef du Service de l'Elevage, des Industries Animales, de la Nacre et des Peches, Papeete, Tahiti, French Polynesia.
Mr. K. J. Garnett	Chief Veterinary Officer, Department of Agriculture, Suva, Fiji.
Mr. W. A. Mackenzie	Director, Division of Sea Fisheries, Hollandia, Netherlands New Guinea.
Mr. Ronald Powell	Fisheries Officer, Rarotonga, Cook Islands.
Mr. Yutaka Sawamura	Fisheries Officer, Nuku'alofa, Tonga.
Mr. J. de Vries	Chief Inland Fisheries Officer, Hollandia, Netherlands New Guinea.
Mr. P. T. Wilson	Fisheries Management Biologist, Koror, Caroline Islands, U.S. Trust Territory of the Pacific Islands.

FAO-IPFC OBSERVER

Mr. J. A. Tubb	FAO Regional Fisheries Officer and Secretary to the Indo-Pacific Fisheries Council, FAO Regional Office, Bangkok, Thailand.

SOUTH PACIFIC COMMISSION

Dr. J. Barrau	Executive Officer for Economic Development.
Mr. L. C. Devambez	Assistant Fisheries Officer.
Mr. R. H. Boyan	Co-operatives Specialist.

The Secretary-General of the South Pacific Commission, Mr. T. R. Smith (extreme left), addressing the opening meeting.

the pearl oyster and other shellfish, even with training in boat building and maintenance for the benefit of native fishermen, and with a host of smaller enquiries."

Speaking of the purpose of the meeting, Mr. Smith said that the South Pacific Commission, at its session last October, had requested the Fisheries Technical Meeting to study the Commission's activities in the fisheries field and to make recommendations on its future programme, taking into consideration:

(i) the progress already made since 1952;

(ii) the organization by some territories of their own fisheries departments;

(iii) the interest shown recently by some territories in the development of commercial fisheries in the area; and

(iv) the question of technical training in the fisheries field.

"While we ask for recommendations for the benefit of the Commission," he concluded, "we hope also that your recommendations will give valuable guidance to territorial governments in the South Pacific area and to the many thousands of people on many islands who must catch fish to live."

Past Progress Reviewed

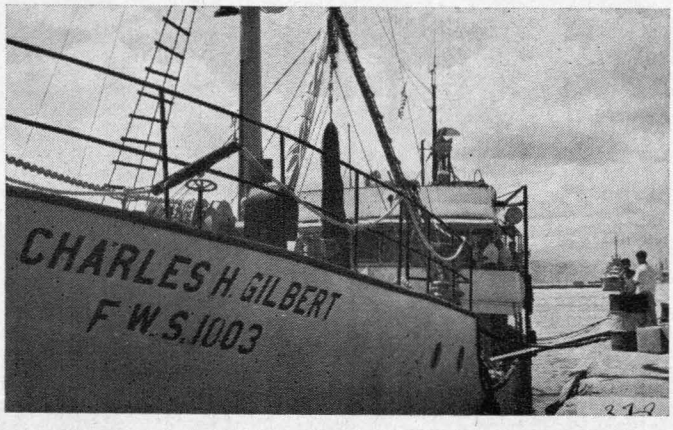
The main objective laid down for the Commission's fisheries programme by the SPC Fisheries Conference held in Nouméa in 1952 was the development and better use of the fish resources of the region. In reviewing the progress made, the meeting recorded its high appreciation of the work of the Commission's first fisheries officer, the late Mr. H. van Pel. During his seven years of service until his retirement in June 1961, he visited every territory in the South Pacific, studying and advising on the development of its fisheries.

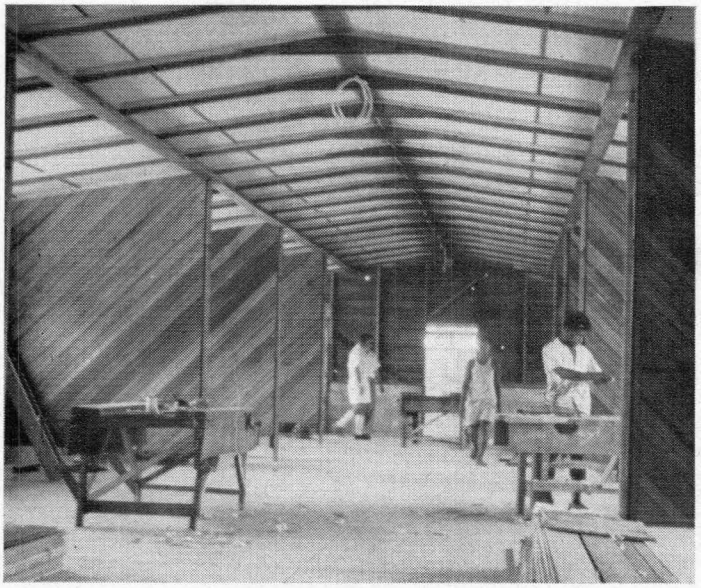
In reviewing other progress made in the region in the past ten years, the meeting noted that industrial tuna fisheries had been established at Pago Pago, American Samoa, and at Santo in the New Hebrides. Fisheries co-operatives had been formed and were operating successfully in several territories, including the Solomon Islands, New Caledonia and the United States Trust Territory, while new or improved fish markets and shore facilities had been provided in the Solomons, New Caledonia, Fiji, Netherlands New Guinea, Papua and New Guinea, and the United States Trust Territory. As well, fisheries departments had been established in French Polynesia, Tonga, Cook Islands, British Solomon Islands, Netherlands New Guinea, Papua and New Guinea, and the United States Trust Territory.

(continued on page 21)

Captain Robert Lee (right) discusses the ship's longlining gear with Mr. J. de Vries of Netherlands New Guinea.

The Charles H. Gilbert, research vessel of the United States Fish and Wild Life Service, called at Noumea during the meeting, and was inspected by participants. Below right: Mr. W. A. Mackenzie (centre) and M. Louis Devambez (right) in the chart room with First Officer Howard Kamauu.





Above: A new dormitory under construction. Right: Students built the walls of this piggery from stones gathered in the school grounds.

Fijian Pupils Build Their Own School

Pupils taking the building course at the Ratu Kadavulevu School for Fijian boys are re-building the school as part of their practical training. They will shortly begin the construction of a new main block.

By E. J. HACKETT*

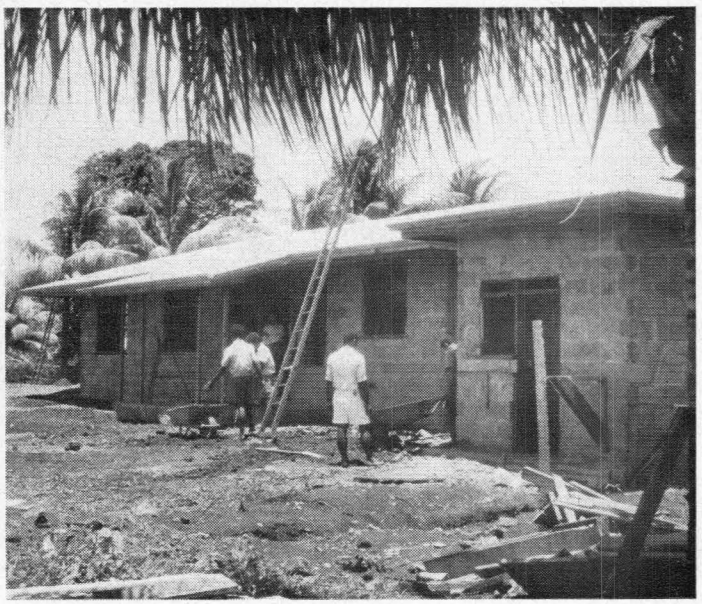
IN Fiji, construction of the main block of the Ratu Kadavulevu School, which teaches Fijian boys agriculture and various building trades, will begin shortly. It will be financed by a grant of £14,000 from the United Kingdom Development and Welfare Fund. There are 450 pupils boarding at the school, which has a resident teaching staff of 27.

Five years ago the school comprised three wooden classrooms and a collection of army huts erected as temporary accommodation after the war. These premises, dilapidated and beyond repair, were completely inadequate, and in 1957 it was decided that pupils taking the building construction course should erect new buildings for the school as part of their practical training.

Since then the boys have built a dispensary and sick bay, power house, woodwork and metal work shops, build-

* Public Relations Officer, Fiji.

Below: Students building a wall, using concrete bricks they had made themselves. Right: A teacher's cottage nearing completion.



ing materials store, agricultural maintenance workshop, woodwork and machine shop, carpentry and joinery workshop, five houses for the school staff, and the first of four dormitory blocks which will each accommodate 115 pupils. Nearing completion is a new dining hall and kitchen block designed to feed 480 pupils at one sitting. The cost has been nearly £65,000, which has all gone on building materials. Labour costs have been negligible.

The main block for which the British grant has been made will include thirteen classrooms, three science laboratories, drawing room, arts and crafts room, library, offices and staff room. The block will be constructed by the boys themselves under the supervision of a Public Works Department officer who has been seconded to the school staff.

Much of the food consumed by the pupils of the Ratu Kadavulevu School is grown on the school farm by boys taking the agricultural course.

Students enjoying a meal. Their average age is about fifteen years.

SPC Fisheries Programme Re-Shaped

(continued from page 19)

The urgent need for extensive research into the fisheries resources of the South Pacific, and for the assembly of economic information concerning them, was stressed. Short-term research is needed in individual territories, directed towards early economic benefits. As well, research is needed to maintain subsistence resources for local populations, and also long-term research to close the main gaps in scientific knowledge and to provide information on which long-range planning can be based.

The meeting considered that the Commission's rôle in such a programme would be:

(i) to define, or assist in defining, research needs;

(ii) to assist in meeting these needs either by providing direct financial or technical assistance, or in obtaining such assistance from other agencies;

(iii) to take the initiative in fostering the interest of international agencies or research organizations as well as of the governments and territorial administrations concerned in this research.

The meeting considered that while reef stocks are invariably limited, the stocks of deep-water fish could be exploited to a much greater degree than at present. More efficient fishing gear and methods were needed, together with biological research on the species concerned.

In considering special areas for research, the meeting urged that urgent steps be taken to provide the means for research on the Spanish mackerel and the big-eyed scad. The meeting also stressed the need for further information concerning the two groups of tuna—those forming surface schools and the deep-swimming varieties upon which the flag-line fishing industry depends. A study of bait resources was needed in connection with the exploitation of surface schools.

A proposal was also made that a research institute be set up in the region to study the improvement and control of fishery resources of coral reef, a main source of food for many islands populations.

Shell Resources Of The Region

In reviewing ways of expanding shell resources in the region, the meeting stressed the need for enlisting the help of overseas experts in developing breeding techniques for pearlshell. It also considered that while present prices for trochus no longer ensured reasonable returns, the steady demand for green snail shell warranted further attention being paid to the development of this fishery.

It was also felt that, particularly in the more isolated islands and atolls, small cash incomes for the local populations might be developed through the marketing of a number of minor items such as coral specimens, sea shells (both complete and carved), carved or polished trochus, and similar products. The meeting noted the recent marked increase in the number of amateur shell collectors, and the growth, particularly in Europe and America, of small businesses dealing in shells. The Commission was requested to seek information on these markets.

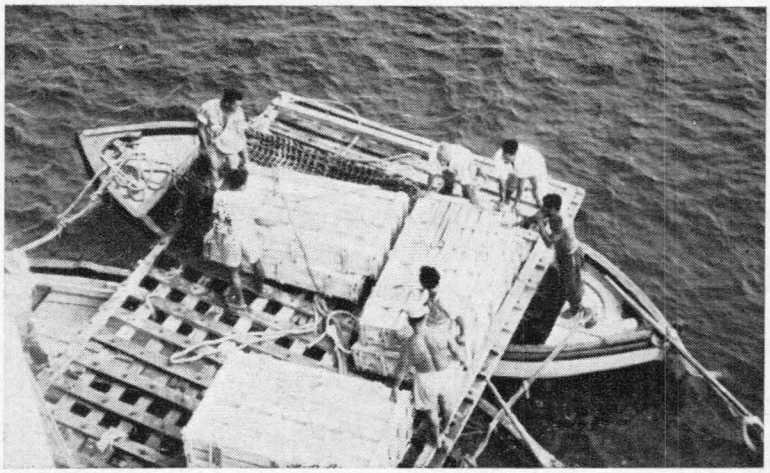
Handling And Processing Of Fish

The meeting studied the various problems encountered in the handling and processing of catches in the three major types of fishery—subsistence, commercial and industrial. Subsistence fishermen ordinarily catch fish for their own consumption, or for barter, and normally it is consumed fresh. Problems encountered in the commercial fisheries in the region include the cleaning and icing of fish and its transport to markets, the provision of ice for fishing boats, and, in remote areas, the preservation of fish by converting it into fish meal or flakes. Fish for industrial markets are either frozen or processed for export, and here as well facilities are largely lacking in the region.

Design And Construction Of Fishing Boats

The meeting suggested that the assistance of FAO naval architects could be sought in the solving of basic problems in the design and construction of fishing boats for the Pacific. It was also emphasized that there was need for a careful study of the widely-varying fishing conditions throughout the region.

The meeting stressed that, under present conditions, mechanization of traditional fishing craft was the quickest, most practical way of increasing catches, and urged the Commission to publish as much information as possible on the subject.



Left: Cliffs seventy feet high encircle Niue Island, which is a coral plateau on top of a submerged volcano. Above: As Niue has no harbour, ships lie offshore and lighters are used to load and unload passengers and cargo.

Health Education Develops On Niue

Some impressions gathered during her recent five-week visit to Niue to assist in the development of health education on the Island are recorded below by . . .

LILIANE GEISSELER*

"I VISIT the mothers and children of Lakepa one week after Boat Day", said the Child Welfare Sister. . . . "You will be able to see our supply of baskets and mats two days before Boat Day", promised the President of the Weavers' Association. . . . Whereas life in most Pacific islands is organized according to the Gregorian calendar, on Niue it revolves around "Boat Day", the day of the month on which the TOFUA arrives from New Zealand via Fiji and Tonga according to a schedule dictated by the exigencies of the banana trade.

On Boat Day practically the whole population of the island walks, cycles or drives to Alofi, the main village of thirteen on the island, and the only one where there is a wharf. Lighters, towed by motor launches, load and unload passengers and cargo to and from the ship anchored offshore.

Said to be the largest coral island in the world, with an area of approximately one hundred square miles, Niue has no harbour, no beaches and no lagoon. The reef lies directly at the foot of cliffs which rise seventy feet to form a first terrace. The great mass of the island, however, consists of a plateau two hundred feet high, which, to the visitor approaching from the sea, makes Niue look like a miniature table mountain.

There are numerous caves in the cliffs; others are found inland, and can be visited only after a fairly perilous descent in the dark. Besides the rain water collected in tanks, and one deep well supplying the hospital and essential services, these caves contain the only fresh-water supply on the island.

Fishing is carried out in seagoing outrigger canoes only. The natural resources of the island lie exclusively in the products of the soil. It is thinly layered on the rocky terrain, with occasional deeper

* Health Education Officer, South Pacific Commission.

One of several hundred new houses built on Niue during the past two years to replace the many destroyed by the disastrous hurricanes of 1959 and 1960.

Above: The Child Welfare Sister's visit is a happy occasion for all except the small patient. Right: A.M.O. Viliua on a round of the island. His truck carries medical supplies, and he is accompanied by a nurse.

pockets, which makes agriculture difficult. However, coconuts and bananas grow well, as do taros, yams, pawpaws and kumaras.

The island is populated by approximately 4,800 hard working and individualistic Polynesians. There is no tribal system, nor are there any chiefs. Instead, the head of each family has a voice in the discussion of village affairs under the leadership of the assembly man.

Since the two hurricanes which struck the island in February 1959 and January 1960, men and women have been spending most of their free time working in teams on the new housing project which, upon completion, will provide practically every Niuean family with a new house.

Islanders' Health Reasonably Good

The general health of the islanders is reasonably good. Twenty new cases of tuberculosis were recorded in 1960, and as well there is filariasis and a very occasional outbreak of typhoid, but the incidence of these diseases is not serious. Flies are extremely prolific, while water is in short supply in the dry season. It is therefore not surprising that bacillary dysentery and food poisoning are common ailments, while intestinal parasites thrive.

The hospital, which has just been modernized, has thirty beds for general cases, and twenty-one for tuberculosis patients. There is one dispensary in a village across the island, and others are being built.

Twice a week a truck carrying medical supplies, and an Assistant Medical Officer and a nurse, sets out around the island to visit each village. A red flag on a pole signals that there is need for medical help. Special calls are made in emergencies, and serious cases are hospitalized.

The Chief Medical Officer, four Assistant Medical Officers and two Assistant Dental Officers form the medical staff.

The nursing staff includes a matron, two sisters, a child welfare sister from New Zealand, and around twenty-four Niuean nurses, who are trained locally. The most promising are sent to Western Samoa to become staff nurses; one has gone to New Zealand for further training.

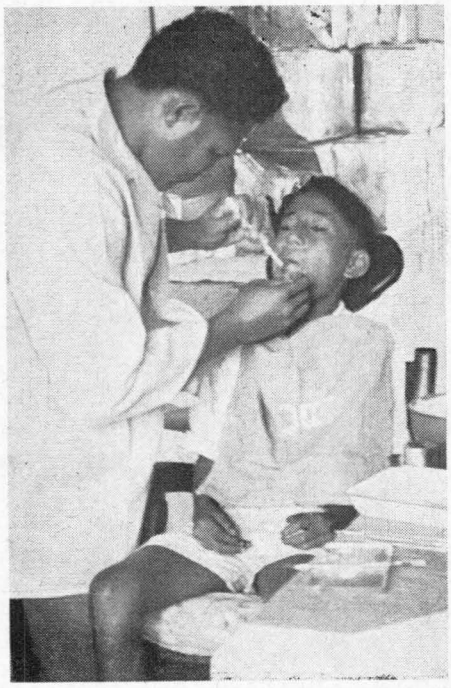
Up to the present time, public health duties have been carried out by the Chief Medical Officer and a Suva-trained health inspector. However, one Assistant Medical Officer is about to receive public health training, and will take over public health and health education with the help of a second health inspector.

In 1960, following an intestinal parasite survey by Dr. Alves of the World Health Organization, it was found that 37.5% of the population and 50% to 60% of some villages were infested mainly with Ascaris (round-worm) and Trichuris (whip-worm).

Health Education Campaign Urged

One of Dr. Alves' main recommendations called for intensive and expert health education aimed at intestinal hygiene and improved sanitation facilities rather than for a de-worming campaign, which would have had only temporary effects under the existing circumstances. As a result, as one of the South Pacific Commission's two health education

Boys of Matalave School line up for a drink of milk during the morning break. Half coconut shells make fine cups.



A.D.O. Makauli has temporarily installed his dental chair in the school's spare room, also used for storing and preparing the daily milk ration for pupils.

officers, I spent five weeks on Niue investigating the situation and helping to plan a long-term health education campaign directed at adults and children. It will be carried out by the Health Department with the co-operation of the Education and other departments as well as existing groups in the community.

During my visit, the medical staff and some of the nurses met every day for a week to review the major health problems of the island and discuss ways and means of developing a programme of prevention and education. Lectures were given by the Chief Medical Officer, the Matron, the Education Officer, and myself.

Some Niuean Health Problems

Assistant Dental Officer Siona Talagi, who has been practising dentistry for quite a long time on Niue, and who has been actively concerned with health education, discusses below some of the health problems on Niue which were examined during that week:

"The first and foremost public health problem on the island concerns sanitation, especially as far as lavatories, pigsties and fowl pens are concerned. The question of bush clearance is also extremely important, since flies and mosquitoes find an ideal breeding ground in the bush.

"Most of the latrines were built for the size of adults and sometimes in places which are inaccessible to children and old people; the hard and rocky soil is partly responsible for this. That is why young children use anywhere around the house for passing their stools and this, of course, attracts a lot of flies. It is difficult to make the latrines rat- and fly-proof; since people are poor, they cannot afford to buy proper building material and always use old tins or empty drums; especially in large families, people hardly bother to put the lid back after using them.

"Pigsties are, on the whole, the most neglected places around the homes unless people know that the doctor or the health inspector is going to inspect the houses; then they start cleaning them. People never bother to make fowl pens and chickens are all over the place. It is also hard to persuade people to clear the bush for a certain distance around their homes and many talks on that subject have been given in the villages.

"As far as personal hygiene is concerned, people are very particular about it and wash daily, especially in the evening, but I think that they overlook the most important points, namely, washing their hands after using the latrines and before eating; they generally wash them only after they have had a meal. People are also very particular when they prepare food and keep a separate basin for that. They hate flies and cover the food with leaves or there must be someone to to chase them; some families also wait until it is night time to take their meals because they reckon that flies sleep at night".

Need For Improved Oral Hygiene

ADO Talagi then stressed the need for promoting oral hygiene in Niue, especially among the children:

"Dental health among Niueans is improving every year, but very slowly. The most common diseases are caries and pyorrhoea; they could be greatly decreased if people were keen with their oral hygiene. (A balanced diet, especially for expectant mothers and young children, is also very important for the development of sound teeth.) Whenever we treat the children of a school, we always give, on the last day, a simple talk to the children and the teachers about dental health.

"The first and foremost step is toothbrush drill, which comprises practical demonstrations of the type of toothbrush to use, how and why it should be used. With the help of models, posters and filmstrips, there are ways of explaining the development of the two sets of teeth, and the formation of caries. To the older pupils who are about to leave school, we stress the importance of keeping up with their tooth brushing after they leave; otherwise they may regard tooth brushing in school as one of the lessons, and when they leave school they also leave the lesson. An attempt at having toothbrush drill every morning after milk has been discussed with head teachers.[1] Toothbrushes have been sold to the children at cost price and we are hoping to start distributing toothpowder in small ice cream cartons at a very low price. It is harder to educate adults, who turn up only when they are in pain".

Benefits From Discussions

Reflecting on the benefits he felt had been derived from the week's discussions, ADO Talagi concludes:

"Until now, health education in Niue has been limited to articles published in the *Newsletter* and to a certain amount of advice given to patients, simple talks to children, teachers, mothers and others who want to know more about a specific problem. I think that by being able to discuss together problems which are never brought up to the surface before we gained a lot of experience and ideas. For instance, we profited greatly from the talks we heard about ways of imparting health information to a class or to a group of people with the help of various teaching aids. Some of these teaching aids have to be imported but many others can be easily made on the island with a minimum of material. We also gained new ideas on the methods of arousing first the interest of the people and then their active participation; one basic principle is to point out to them the rewards and benefits they will gain by adopting a new practice, instead of threatening and punishing them. I honestly think that within the next few years the health of the people of Niue will improve greatly if the problems we discussed are solved one way or another".

Bright Future For Health Education

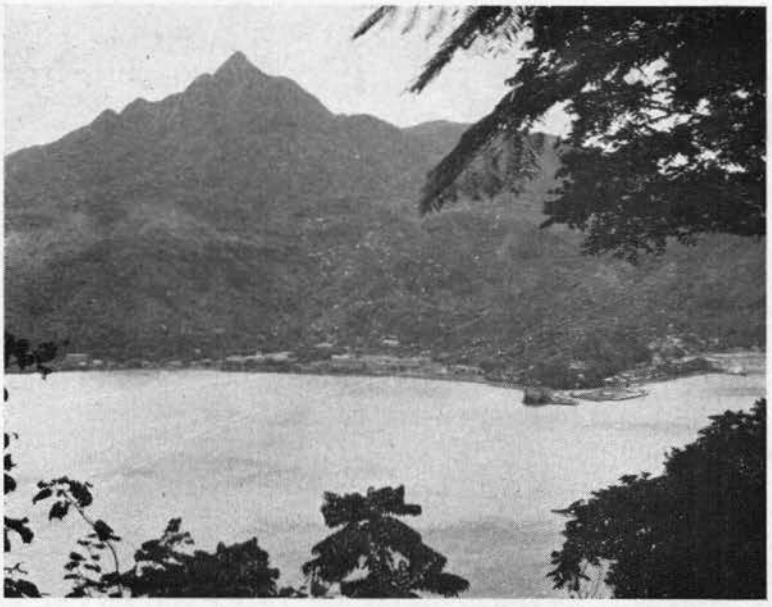
Not only the health staff, but also the teachers, showed an interest in health education and its methods. With their collaboration, as well as the help of the various religious groups and the members of the developing women's clubs, a bright future for health education on Niue can be confidently anticipated.

[1] Every morning during the break, milk is prepared on the spot from dry powdered milk and distributed to the primary school children. This provides not only a valuable supplement to their diet but it is also a good educational tool.

Nautical Training School To Open In Port Moresby

On 1 May a nautical school to train seamen and marine engineers will be opened at Napa Napa, near Port Moresby. Eight trainees between the ages of 16 and 20 years will be enrolled for the first course, which will last twelve months.

The standard of training will be similar to that provided at the Nautical School, Hollandia, which in the past two years has trained two groups of twelve Papuans and New Guineans.



Site of the fifth South Pacific Conference. Pago Pago, capital of American Samoa, lies at the foot of Matafau, highest mountain on Tutuila, main island of the Group. Utulei Village, where the fifth South Pacific Conference will be held next July, is located on the bay below the peak, and slightly to the right. It is a school and hospital centre for the Government of American Samoa.

INTRODUCTORY NOTE

At each South Pacific Conference—one has been held every three years since 1950—the South Pacific Commission brings together about seventy islands representatives from some eighteen South Pacific territories, to discuss common problems, exchange ideas, and suggest ways in which the Commission can best help their peoples. The next such meeting, the fifth South Pacific Conference, will be held this year at Pago Pago, American Samoa, from July 18-30.

Looking Back . .

In this article a well-known Australian journalist records his impressions of the second, third and fourth South Pacific Conferences, held at Noumea, Suva, and Rabaul, respectively.

By C. E. SAYERS

IT seems only yesterday that I attended the second South Pacific Conference at Anse Vata, Nouméa, and encountered the open friendliness and enquiring minds of the South Seas peoples at the meeting. Yet that was in April 1953. I was fortunate in attending the two succeeding Conferences as well—the third held at Nasinu, near Suva, Fiji, in April-May 1956, and the fourth at Malaguna, near Rabaul, New Britain, in April-May 1959.

My attendance at all three meetings developed into a cumulative experience that, as one session built upon another, became progressively broadening and stimulating.

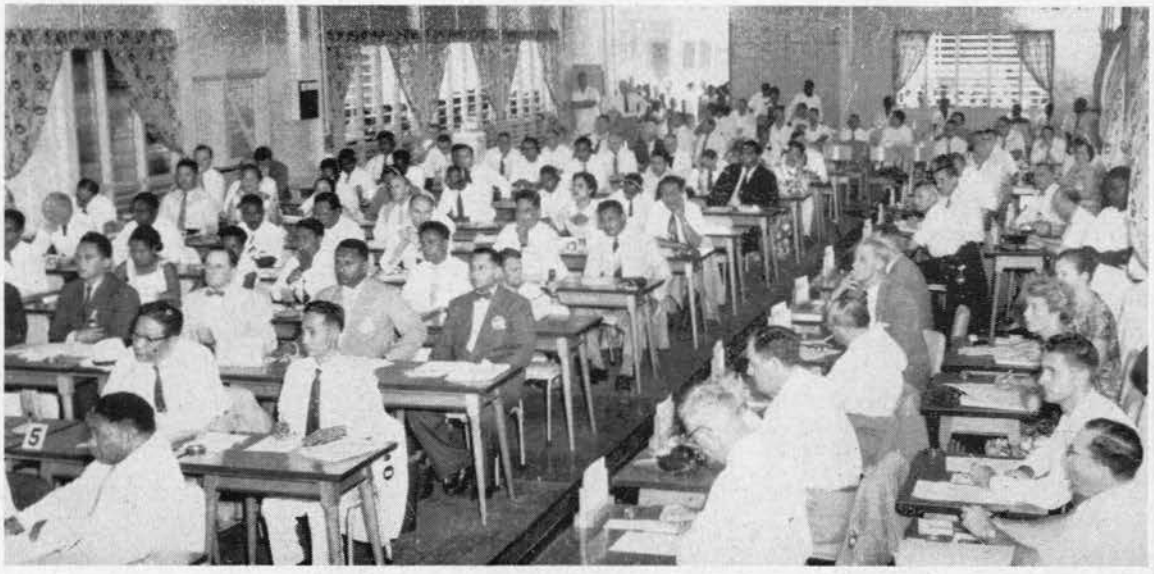
In many ways the first of the four sessions was largely experimental, though perhaps rather in the human sense than in the paper results achieved. It has been written of the men and women who attended that they were nervous and unsure of themselves. Yet they did lay a foundation of friendly, courteous discussion, and respect for another's views, that has been progressively built upon in the sessions that have been held since 1953.

From the moment of my first introduction to the men and women of the South Pacific, when I sat with them in the Conference hall at Anse Vata in April 1953, my abiding impression of them has been of a courteous, friendly people working quietly, calmly, and with growing confidence towards a better understanding of each other, and of each other's problems.

While there has been firmness, never has acrimony disturbed the proceedings. It has become apparent that with each session a growing belief has come to delegates that the discussions and work are for the good of all, and not for the advantage of any one territory.

Delegates Undertaking Greater Responsibility

Progressively, too, the delegates are undertaking more of the responsibility of Conference sessions. It was recorded of



The fourth South Pacific Conference in session at Rabaul in April-May 1959. On the right are observers and SPC secretariat staff.

Women delegates at the fourth South Pacific Conference. Women are playing an increasingly important part at these triennial gatherings.

them at the first meeting in Fiji in 1950 that for the most part—certainly in the early stages—they were content to read out papers that had been prepared for them by advisers behind the scenes. That was a beginning, a tentative approach to a new experience.

At Nouméa in 1953 there was a much different approach: there was a bolder intellectual participation by delegates, an eagerness to express views that obviously were independently framed. That second session infused warmth and breadth and body into the South Pacific Conference.

Perhaps my most vivid recollection of that meeting is of the men and women who formed it, seeing at first hand the workings of the secretariat of the South Pacific Commission, of whose structure the Conference is a part. Before, they could have had only a dim idea of what it was all about. At the Commission's headquarters, however, in daily contact with its officers, the picture must have become much clearer.

The value of that contact stays with the islanders. The then Secretary-General of the Commission, the late Sir Brian Freeston, wrote of the Nouméa Conference: "Assuredly (it) is a potent instrument in the hands of the six great powers towards the discharge of that obligation, which each has accepted as a sacred trust, to promote to the utmost the well-being of the inhabitants of its non-self-governing territories".

As each session of the Conference is held, the islanders themselves see to it that their discussions and their decisions aim at the greatest possible contribution on their part towards helping the administering powers to discharge that obligation. Shrewdly and realistically they talk and act, sincerely working towards a better life for the peoples of their widely-scattered islands.

Women Playing An Increasing Part

One of the most interesting developments of the sessions held since 1953 has been the increasing part women delegates have played.

There were three women delegates to the Nouméa session—Mme. Terorotua Moua, a school teacher from Tahiti; Mataio Maka Parua Ariki, a Councillor of Rarotonga; and Tani Sisa, a nurse from Papua.

Tani, jolly, always smiling (we were to meet her again in Rabaul in 1959), ruffled Polynesian male calm by suggesting the importance of women being well represented at future Conferences. The conservative Polynesian contrary view was put by a delegate from American Samoa, who said he felt that the mother birds were more important in the nest looking after the youngsters while the males were out on the ocean catching fish for them.

Tani Sisa's laughing challenge has sent many "mother birds" into the wider world of the South Pacific Conference since she first made it nine years ago.

There were five women delegates to the third session of the Conference at Nasinu in Fiji in 1956, and one of them was elected deputy Chairman of a standing committee which discussed social welfare and health. She was the Hon. Mrs. L. G. Untalan, of Guam; in the absence of the Chairman she presented the report of that committee to the Conference.

An even greater advance for women delegates came at the Malaguna session in 1959, when Miss Tiresa Hunter of Western Samoa was elected Chairman of the standing committee for social welfare and health, a striking compliment to the increasingly-important part women are playing in the life of the South Pacific territories. There were seven women delegates at the Malaguna session.

Delegates Assume Greater Control

It was suggested at the 1953 session at Anse Vata that the time could come when the Conference would be presided over by an islands delegate. It has not come yet, but there has been since a remarkable advance in the structure of the Conference, and of its conduct, resulting in delegates playing an increasingly-important part.

From the beginning in 1950, a Commissioner of the host nation has been chairman of the Conference. The daily work of the Conference is mapped out by a general committee, on which sits a delegate from each of the six nations forming the South Pacific Commission.

At the first and second sessions the Conference met as a whole. At the third session, the work of the Conference was split between two standing committees, one dealing with economic development, the other with social welfare and health. This procedure encouraged more detailed consideration of agenda items, and greatly strengthened participation by delegates when they realised that they were working under the chairmanship of one of their fellows, and not of a European presiding over a large, and in many ways unwieldy, Conference.

The system of committee discussion was regarded as an experiment when it was adopted for the 1956 session. At the close of the meeting the delegates reported to the South Pacific Commission: "We are convinced of the success of this working procedure, and have strongly recommended its adoption by the fourth Conference".

The standing committee system was also an outstanding success at Malaguna three years ago; obviously it has come to stay. Now, after twelve years, the islanders themselves conduct the essential part of the Conference that was established as part of the responsibilities of the Commission to them.

The Fifth Conference

From July 18-30 this year, delegates from many parts of the Pacific will once again assemble for another Conference—the fifth. It will be held at Utulei, near Pago Pago, American Samoa.

As always, there will be new faces present. Some delegates will, of course, be coming back for their second or more (in a few instances their fifth) attendance. Old friends they have become for us; and there will be much to talk about when we meet again, of their homes, their aspirations, of progress made gener-

(continued on page 47)

This design, by Mrs. P. M. Prescott of Port Moresby, was awarded first prize in the design competition for an emblem for the first South Pacific Games. There were over one hundred entries.

Suva Expects Record Crowds For 1963 Games

A record influx of visitors to Suva for the first South Pacific Games, to be held there in September 1963, is expected by the organizers. They advise people who are planning to attend to book their accommodation immediately.

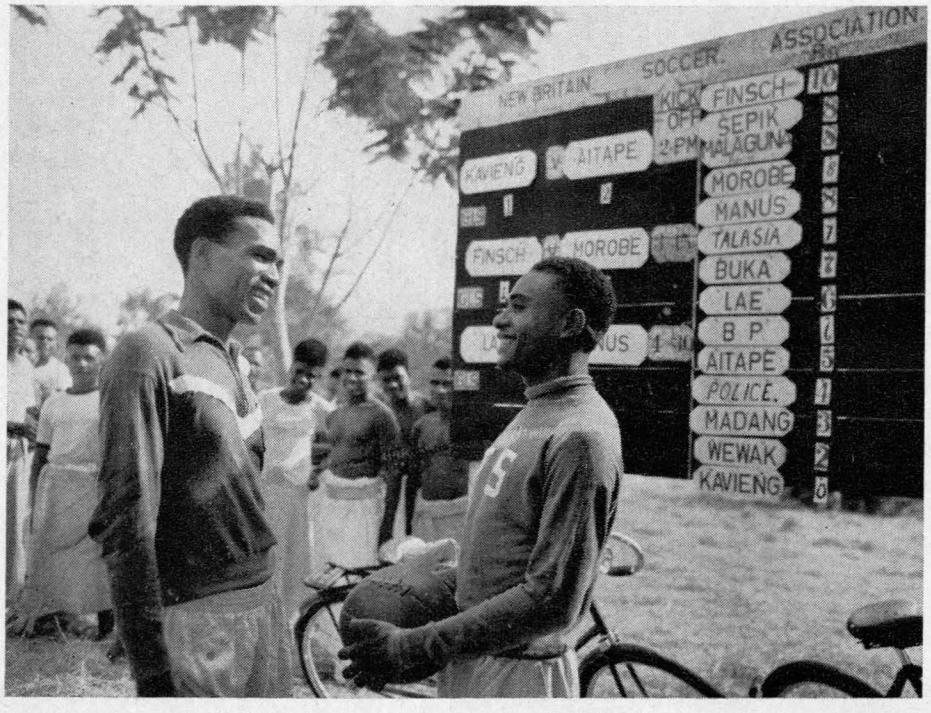
By L. O. SIMPSON*

FIJI, as host territory for the first South Pacific Games, which will be held in Suva in September, 1963, has set up a committee to assist visitors in obtaining accommodation. The committee is not concerned with accommodation for teams or officials accompanying them, for whom separate arrangements are being made, but with visitors who intend to travel to Fiji to see the Games.

It is estimated that 3,000 to 4,000 people will visit Suva during this period, and although the city has several hotels and boarding houses, problems are bound to arise in accommodating such a large number. Those planning to attend the Games are therefore strongly advised to book their accommodation as early as possible.

Those unable to make adequate arrangements, or who need advice concerning their visit, are invited to write to the Accommodation Committee c/- public Relations Office, Suva, Fiji, and they will be assisted in every way possible.

* Mr. Simpson is Secretary of the South Pacific Games Council, and also of the Organizing Committee for the first South Pacific Games.



The captains of two New Britain football teams chatting together after a match at Rabaul. Soccer promises to be one of the most hotly-contested sports at the first South Pacific Games.

107 Entries For Design Competition

The design chosen as a motif for the 1963 South Pacific Games depicts a Pacific Islands runner against a background showing the Southern Cross above an island bearing a coconut palm. An oval athletics track forms the border.

The design is the work of Mrs. P. M. Prescott, of Port Moresby, New Guinea, who received the first prize of £stg.40. The second prize-winner was Mr. N. L. Joe, of Suva, Fiji.

The 107 entries for the design competition came from Australia, New Zealand, Papua-New Guinea, Fiji, the New Hebrides, Western Samoa, the Cook Islands, Nauru, Tahiti, and the British Solomon Islands.

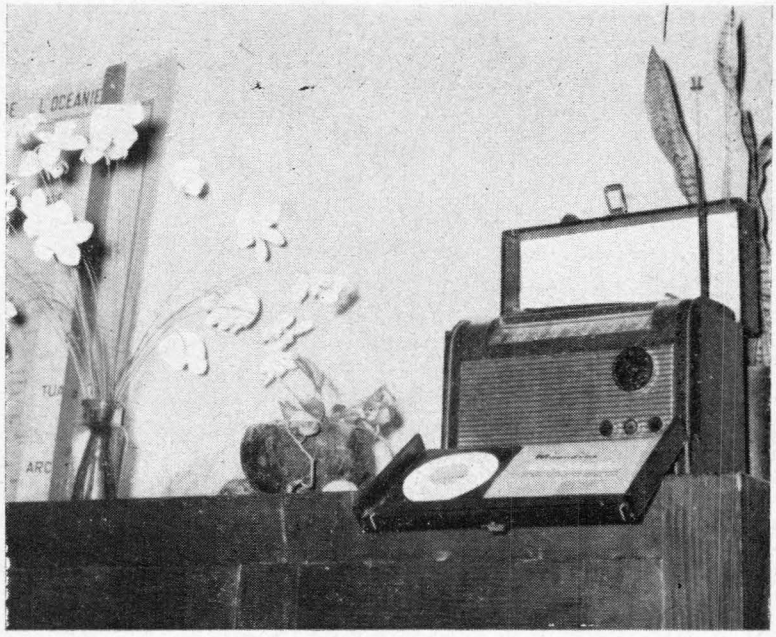
The competition was judged by Mr. J. K. Payne, a Suva professional artist and screen printer, Mr. L. G. Usher, executive director of the Fiji Times and Herald Ltd., and Mr. Trevor Blanchard, of the Suva Junior Chamber of Commerce. The judges said that the general standard of the entries was high, but some of them contained symbols characteristic of one territory only.

Latest Progress

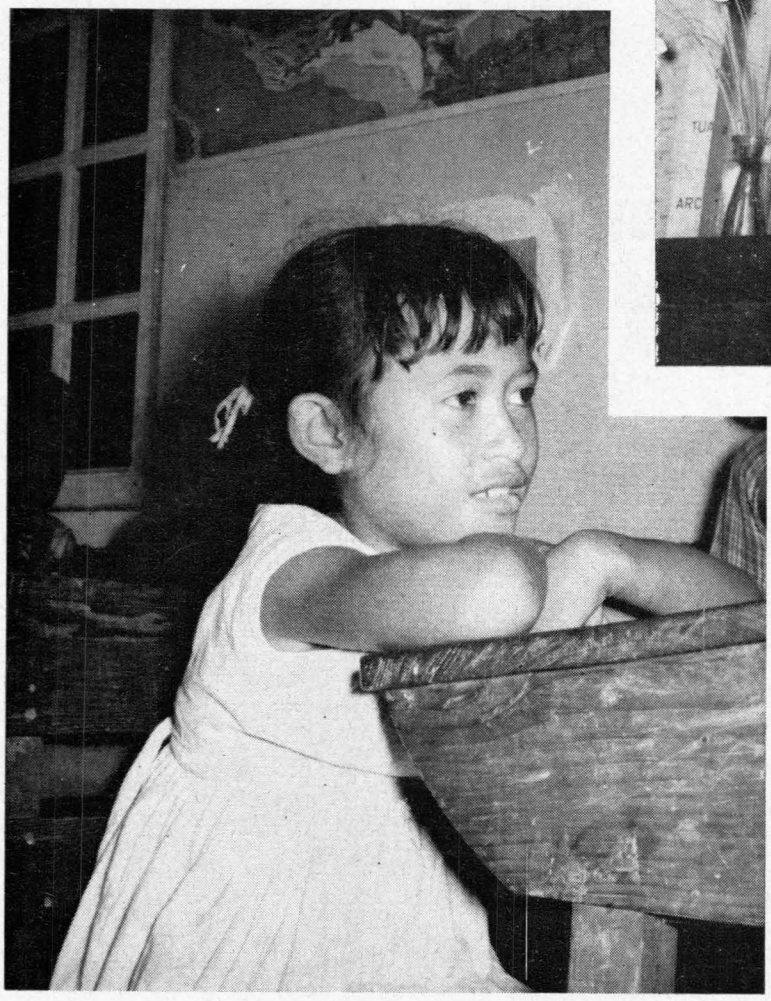
At Buckhurst Park, Suva, where the Games will be held, a new grandstand, with showers and changing rooms, is being built, together with basketball and tennis courts, and entrance booths. Work has begun on outdoor terraced seating accommodation for spectators.

(continued on page 35)

This radio receiver in a school on an isolated island in French Polynesia provides for the pupils a vital link with the teacher conducting school broadcasts in the studio of the Papeete radio station.



Interest and wonder are reflected in the face of this small pupil as she listens to a "Tico and Mareta" broadcast.



Teaching French By Radio

French lessons are given by radio to schools throughout French Polynesia, which covers an area eight times the size of France.

By BERNARD MEDARD*

IN French Polynesia, where there are 137 schools scattered among 55 islands, communications are probably as difficult as in any other territory in the Pacific.

Its total area is around 1,600,000 square miles, eight times the size of France. It is not surprising that radio broadcasting should be so widely used to help both teachers and pupils overcome their isolation.

Initial Survey In Tuamotu Group

In 1959 a teacher from France, M. Valot, undertook an evaluation of school achievements in the most remote part of the territory, the Tuamotu Group. He found the results very disappointing. French was scarcely spoken at all although it was the only language taught. He discovered that the teaching was far too academic, and bore little relation to everyday life, while lack of training of the teachers was also a problem.

It was realised that knowledge of culture and modern techniques cannot be absorbed unless there is, fundamentally, a good grasp of a common educational language.

As a result of this survey, a plan for the teaching of French was elaborated in 1960 and supported by Government funds. The main features of the programme were the teaching of French as a foreign language, broadcasts for schools; and special training (including supervision and follow-up) for teachers.

Priority To Spoken Word

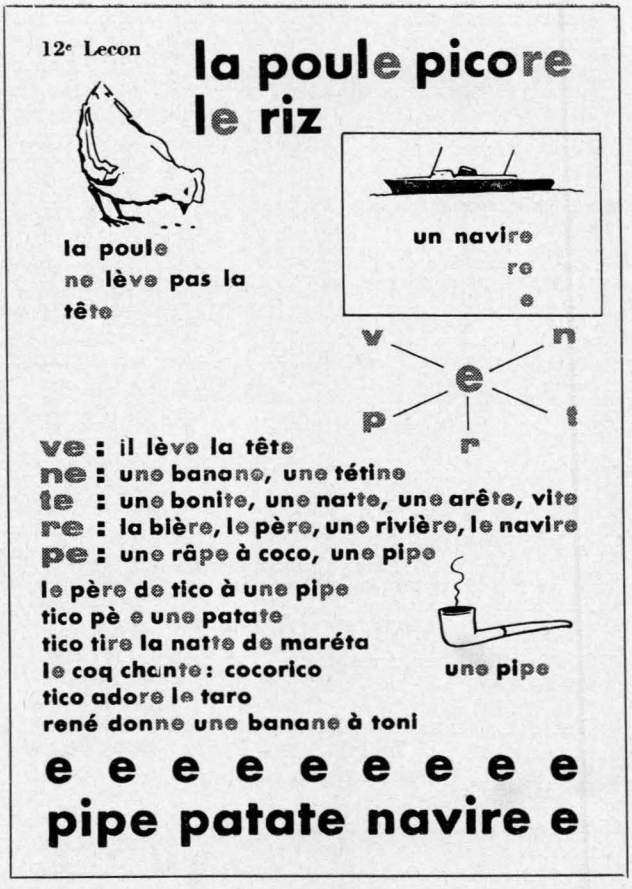
The case of the Tuamotu Group was rather extreme, but the same problems could be found in varying degrees throughout the territory. They all stemmed from one initial misconception in the teaching of the language: children were being taught French, but not how to speak it.

It was therefore decided to extend the broadcasts to schools to the whole of Polynesia. The first step was to introduce young listeners to the language, and we therefore started working for an audience of primary school pupils. Radio Tahiti gave us time on the air between programmes for the general public.

We still had to determine the method of teaching by radio. We were fully aware of the difficulties encountered by people who had attempted to tackle the same problem elsewhere, particularly in Africa. The first thing to decide was what role the teachers themselves should

* Inspector of Primary Schools.

Above: M. Napoleon Spitz, who is in charge of the schools broadcasting programme from Radio Tahiti, records a lesson with "Tico" and "Mareta".



A page from "Tico and Mareta". The letters in light type are printed in red in the original.

play. We were finally guided by the Chico-Meyer method (inaugurated at Douala in 1956) and now being used by the French Broadcasting and Television Service.

The speaker addresses himself directly to the children, but the teacher still has a most important function, since it is he who ensures that the pupils understand the meaning of the words and sentences they hear: the lessons would be mere verbalism if visual aids such as movements, objects or pictures were ignored. (A translation into Tahitian is sometimes provided, but it is purely supplementary.) Silent periods enable the master to make the children repeat some parts of the lesson and to check their pronunciation. Four musical notes are used as a time signal, so that the teacher knows exactly how long he has to go before the text is resumed. His function is, therefore, to liven up the entire programme through his active participation in the lesson.

The subject matter also needed considerable attention. We were determined that the children should understand exactly what they were supposed to learn, and that what they were learning was of practical value to them. Therefore the choice of words and the construction of sentences were given very careful consideration. We were guided in this by a book, *Basic French 1st Stage,* published by a Government Committee.

We found this extremely helpful, since it embodies words and expressions which the student can learn easily and use quickly. Since it provides only a general vocabulary, we found it necessary to omit some of the terms found therein which had very little immediate value in a Polynesian society, and to replace them by others which are in daily use, such as "coconut", "canoe" and "coral". It is hoped that this will help to relieve the stiltedness of the French school language which is so often noticed and deplored in countries where two languages are spoken.

Broadcasting Supplementary Only

A new teaching system may seem quite spectacular, but this does not necessarily mean that it is good. Experiments in countries where French is not the mother tongue have shown quite definitely that such broadcasts are useful only if they are based on a well-tried classical method, and used as an adjunct thereto. This is the basic principle adhered to by the French specialists in the production of audio-visual aids generally, whether they be films, broadcasts, records or television for schools. In the field of teaching there are no methods, only techniques and audio-visual aids.

The Government Committee concerned has always made it quite clear that *Basic French* is not a primer, only a glossary and a grammar book, which can be used by authors of extension material. The specialists who deal with school broadcasts insist that information taught by sound should be supported visually. It is also considered necessary to relate the teaching of a language to that of reading, so that the child may recognize a written word and know that it is already familiar.

It seemed obvious, therefore, that our teaching of French in Polynesia needed to be based on a primer designed for beginners. Accordingly, the story of *Tico and Mareta,* in two volumes, was prepared and published by the Government of French Polynesia in 1960. The actual printing was done in Tahiti.

The Programme Launched

People listening to Radio Tahiti at 8.15 a.m. on October 3, 1960, heard the beginning of a new programme called *Tico and Mareta.* During each school term it is on the air for half an hour every day except Saturday, which is the normal "day off" in most Polynesian schools. It was interrupted during the long vacation, and started again for its second year in October, 1961.

Two months before the broadcasts began, approximately fifteen teachers from the more remote and isolated islands had attended a training course at Papeete to learn about this new technique. They returned to their islands, each with a portable transistor radio set purchased from territorial funds. In the other schools, the teachers use either a personal set or buy one through the school co-operative funds.

For the actual broadcasts we chose one of our teachers who had shown ability in school plays and amateur dramatics. He is in charge of the programme. Tico and his friend Mareta are now firmly established characters, and are great favourites with Polynesian children.

Here is an extract translated from Lesson 12:

Guide Teacher: Good-morning, teachers; good-morning, children; good-morning Tico; good-morning, Mareta.
Tico and Mareta: Good-morning. Good-morning, friends.
Guide Teacher: Tico, what is your name?
Tico: My name is Tico.
Guide Teacher: And you, Mareta, what is your name?
Mareta: My name is Mareta.
Guide Teacher: Teachers, ask several of your pupils: "What is your name?" Children, you will answer like Tico did: "My name is . . . ." Teachers, ask your pupils one by one (30-second silent period).
Guide Teacher: Tico, what is your father's name?
Tico: My father's name is Marama.
Guide Teacher: Mareta, what is your father's name?
Mareta: My father's name is Tutaha.
Guide Teacher: Teachers, ask your pupils (30-second silent period).

* * *

Mareta: The hen is pecking rice. Sir, the hen does not lift its head.
Guide Teacher: Yes, Mareta. The hen is pecking rice. It does not lift its head. Repeat, Tico, slowly and clearly.
Tico: The hen is pecking rice. It does not lift its head.
Guide Teacher: Your turn, Mareta, like Tico, slowly and clearly.

* * *

Particular care is taken with pronunciation, especially of those French sounds which do not exist in Tahitian. In some cases there is a set of speech training exercises to be performed by the children.

For the sake of variety we sometimes introduce singing. We have engaged a singer with a piano accompanist, and the children learn the songs by listening to them. The techniques used for analysing the music and making the children repeat the words are inspired from records for schools published in the series *Plaisir de Chanter* (*The Joy of Singing*). The children love these sessions, and visitors touring the islands are sure to see in every village at least one little girl with long pigtails skipping along the road and singing lovely old French songs.

Programme Widely Popular

We estimate that approximately ninety Government schools, and quite a number of private ones as well, listen to these programmes regularly. Adults take advantage of them to learn French, while the Chinese traders at Papeete, and the mining families at Makatea, are highly enthusiastic about the series.

During the last school year we had to choose which wavelength we would use, since Radio Tahiti broadcasts alternatively on 25 m. and 49 m. After various tests we chose the 49 m. band. However, since October 23 Radio Tahiti has broadcast simultaneously on both wavelengths, and this has been a great improvement for listeners in the outlying islands.

A Trial-And-Error Process

We do not pretend that we hit the nail on the head first time. Even methods proven elsewhere need "running in" because of differences in local conditions, standards of living, school levels, and teacher efficiency.

M. Cacot, recently-appointed Inspector for Schools in the Island Group District, found when he visited the Tuamotu Group that there was too much text and not enough silent periods. The teachers did not have sufficient time to give individual attention to their pupils, and therefore the latter were not remembering very well what they had learned. We have realised that we can work only at a pace suited to the slower children, and have altered the amount of material included in each broadcast accordingly.

It is also not possible for children during one half-hour period to take in material which should normally be spread over four daily lessons. So, at the end of each broadcast, we dictate sentences to the teachers which can be learned later in the day. These are given purely as an indication, since each teacher is completely free to use whatever teaching material he prefers.

There is yet another improvement to introduce. The lesson prepared from a reading primer does not give sufficient emphasis to the grammatical constructions and forms which are the backbone of the newly-learned vocabulary. Therefore, we should have a year's programme on verbs and "tool" words (adverbs, conjunctions, prepositions, pronouns, etc.) corresponding to each lesson in the primer; this would ensure that elementary syntax receives the attention it deserves. The work done in this field by Frete and Magne in Morocco will be a great help to us in that task.

Technique Suitable For Other Subjects

The number of listeners to these broadcasts is quite appreciable. There is no doubt that they are of real help to the teachers, and that they have great appeal for the children.

Since there is no limit to the possibilities that radio offers as a means of mass contact, and since it makes possible a most economic form of audio-visual aid, we feel that it has not been sufficiently investigated as a teaching technique. The initiation to spoken French seems the most immediate need in French Polynesia, but other subjects could be dealt with in the same way. The main point to remember is that there must be a continuous evaluation of the results achieved in relation to the means used, so that we can adjust the programme accordingly.

We must therefore feel our way carefully. One cannot discard the traditional teaching techniques—a well-tried system is not necessarily obsolete. On the other hand, one must keep an open mind and be prepared to adopt new methods or alter old ones to achieve better results in the schools, once the needs of the population have been correctly assessed.

NEW SPC HEALTH HEAD TAKES UP POST

ON January 31 Dr. Guy Loison, M.D., M.P.H., arrived in Nouméa from Paris by air to take up appointment as Executive Officer for Health, South Pacific Commission. He was accompanied by his wife and youngest daughter, Ghislaine; two other children will remain in Paris to continue their education.

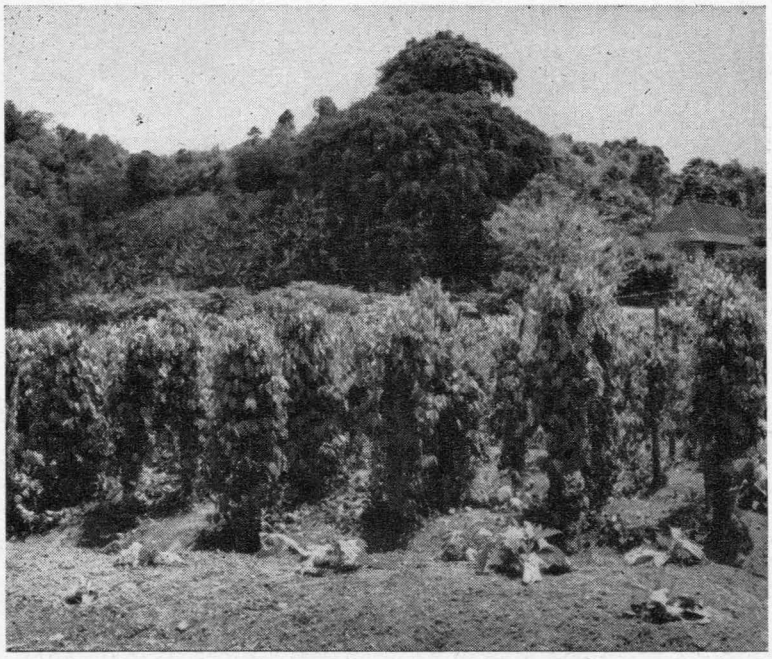
Dr. Guy Loison.

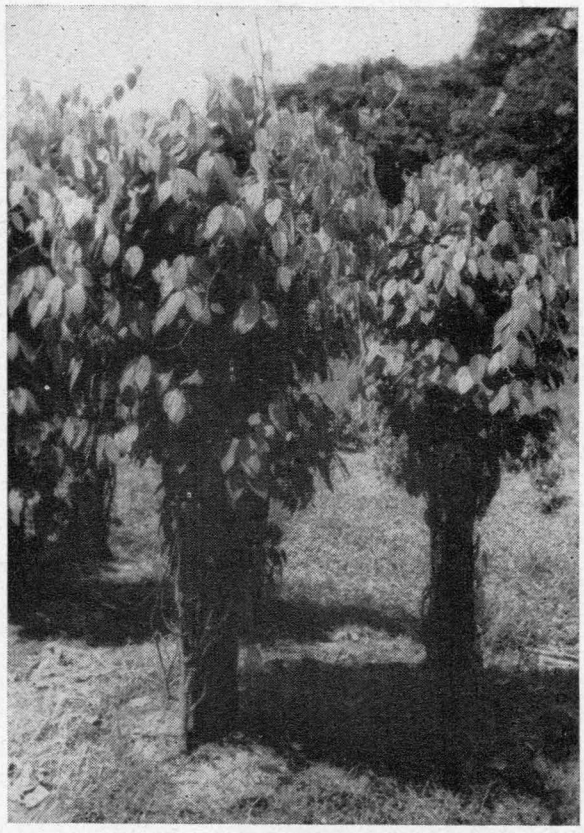
Dr. Loison, who is 48, holds the rank of Médecin-Lieutenant-Colonel of the Marines. He recently completed a one-year post-graduate course in health education at the University of California, Berkeley, U.S.A.

This is Dr. Loison's second post with the Commission. In 1952, after three years of service in Vietnam, he was appointed Assistant to the Executive Officer for Health, a post he held for four years. His earlier experience in the South Pacific included four years in Tahiti from 1940 as a district medical officer, followed by two years in New Caledonia in the same capacity.

On leaving the Commission's service in 1956 Dr. Loison took a two-year course at the Paris Faculty of Medicine. From 1958 to 1960 he was attached to the Department of Endemic Diseases Control at Brazzaville, and later was appointed Director of the Medico-Social Studies Section of the Centre d'Etudes Supérieures there.

Dr. Loison is a Chevalier of the Legion of Honour, Chevalier of the Order of the Palmes Académiques, and of several Colonial orders.





Above: Pepper garden established at Naduruloulou plant introduction station, Fiji.
Right: Pepper growing on tree fern supports.

Pepper Growing For The Smallholder

In terms of world trade, pepper is by far the most important of that familiar group of food flavourings known as spices. How the pepper vine is cultivated and the crop processed to produce the pepper of commerce is described in the article below.

By V. E. SILLS*

PEPPER is one of the earliest spices known to mankind, and for many years it formed a staple item of commerce between India and Europe. The plant, usually called black pepper, has the botanical name *Piper nigrum* L., and is a large perennial vine indigenous to the moist lowland forests of Ceylon and South India. It was subsequently introduced into Java, Sumatra, Borneo, the Malay Peninsula, Thailand and the West Indies. At the present time Indonesia, India and Sarawak provide the bulk of the world's pepper.

As a point of interest the genus *Piper* includes six or seven hundred species, many of which have aromatic properties. Relatives of black pepper with economic or ornamental value are betel-nut, cubebs (of medicinal value), kava and the peperomias (ornamentals). Other peppers, not related to black pepper, are the red Cayenne and paprika peppers derived from the fruits of *Capsicum* spp., and pimento or Jamaica pepper.

Black pepper is not considered an easy crop to grow, but its requirements are undoubtedly well understood by the Chinese, for in Sarawak they have proved excellent pepper growers. Encouraged by high prices during the early fifties, growers rapidly increased production, until by 1955 Sarawak had become the world's leading pepper producer. Unfortunately the period of low prices which followed had a discouraging effect on many of the growers, and exports from Sarawak are now only half their former peak volume.

* Biochemist, Department of Agriculture, Fiji.

Pepper In Fiji

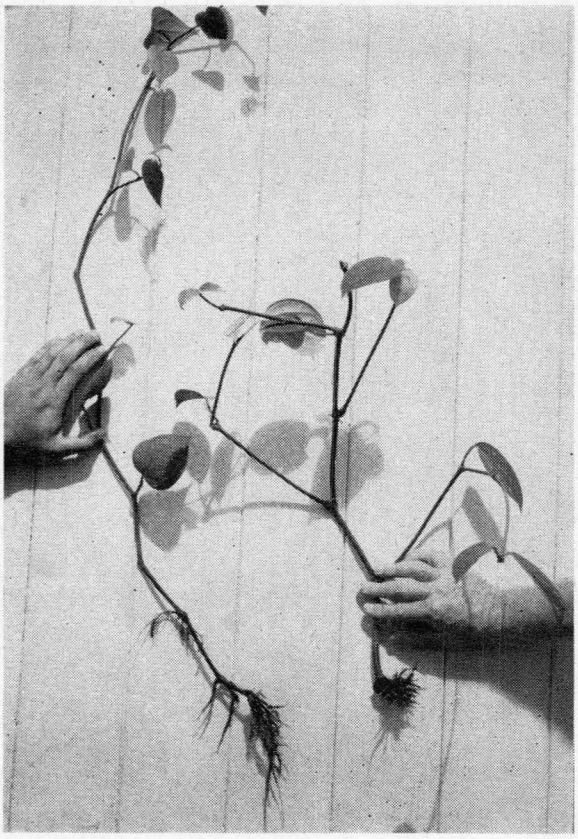
Stonehewer Cooper (1888) mentioned pepper as being one of the commodities to be exported from Fiji in 1879 and 1880. B. E. V. Parham (1954) reported, however, that no pepper plants were to be found anywhere in the Colony until 1951, when five cuttings of a high-yielding strain from Sarawak were established at the Naduruloulou plant introduction and quarantine station.

Pepper gardens are now well established at Naduruloulou, and some slight interest is being taken in the crop in the Rewa Valley, where farmers are now growing rice, bananas, coffee, coconuts, etc., in place of sugar cane following the closing of the Colonial Sugar Refining Company's mill at Nausori in 1959.

Climate And Soils

The pepper vine requires a hot, humid climate with an average rainfall of about 100 inches per annum, fairly well distributed since the plant cannot withstand long periods of drought. In this connection it is interesting to recall that the prolonged drought-like conditions experienced in the wet zone of Fiji between 1957 and 1958 were largely responsible for the failure of attempts by local planters to establish new pepper gardens about this time.

Pepper has been grown successfully as far as 20 degrees north or south of



Rooted pepper cuttings. Though easily grown from seed, there are important advantages in raising pepper from cuttings.

Pepper cuttings being raised in the nursery, Naduruloulou.

the Equator, but it is known to give best results under the hotter conditions found in countries nearer the Equator, like certain other tropical crops such as rubber, oil palm and cacao. The vine may also be grown successfully at altitudes of 2500′ and higher—near the Equator.

In regard to soil requirements for pepper, two important conditions need to be fulfilled. The soil must be well drained, and it must contain plenty of organic matter or humus. Heavy clay soils or soils of a boggy nature are quite unsuitable, as the pepper roots are very susceptible to rot where soil drainage is poor. The presence of organic matter in the soil is important, not only because of the supply of nutrients, but because it ensures good water-holding properties—a desirable characteristic during dry spells.

Commercially Useful Varieties

Sandford (1952) mentions that two varieties of pepper are grown in Sarawak. The more common one has smallish leaves, small berries and a high yield, while the other variety has rather bigger and thicker leaves, big berries and lower yield.

Five varieties are cultivated in Indonesia, three of which are generally grown for black pepper and two for white pepper.

Raising New Plants

It is usual to raise pepper from cuttings, although it may also be grown from seed. The cuttings have the advantage that the plants come into bearing much more quickly than seedlings —in three or four years compared with six to seven years for seedlings.

The methods of preparing cuttings vary from country to country. Those used in Sarawak are described in some detail by H. Sandford (1952), while for methods recommended in Jamaica, reference may be made to a useful little booklet by J. F. Ward (1960) published by the Ministry of Agriculture and Lands, Jamaica.

Briefly, strong cuttings from 1′-2′ long are usually selected, taken from the branches growing from the base of the vine. These are preferably raised in nursery beds on good, well-drained soil in a sheltered position. Growth usually commences after three or four months, after which the plants are ready to be transplanted in the field.

In India, under favourable conditions, pepper is successfully established by planting cuttings direct in the field, although the percentage of failures is high. In Jamaica, on the other hand, no success has been reported with this practice.

Pepper plants are easily grown from seed but, although usually vigorous, are very variable as a result of cross fertilization; there is also the risk that the vines will revert to the unproductive unisexual male type.

SUPPORTS: To provide supports for the vines, living trees or else concrete or hardwood posts may be used. If live supports are preferred they should not overshade the vines too much, and should not be allowed to exhaust the soil. Brown and Reader (1952) quote the following trees as being most widely used in India: Ijak tree (*Artocarpus integer*), areca nut, mango, kapok and dadap.

The trees selected should be quick growing, able to withstand heavy pruning and preferably leguminous. If hardwood supports are used it is important to select good quality timber, for the vine may require supporting for fifteen years or longer.

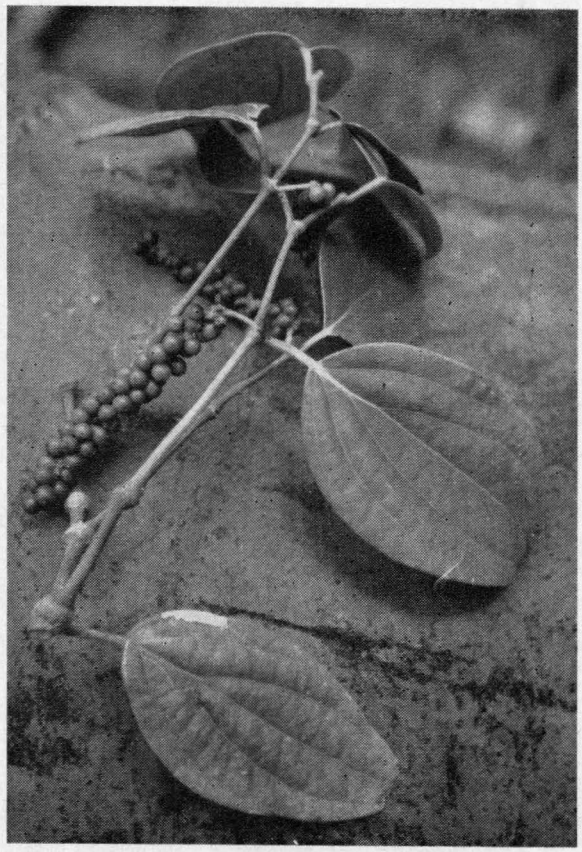
Malayan planters recommend placing the posts 6′-7′ apart each way. The Chinese are reported to use closer spacing.

For living supports the planting distances naturally vary according to the type of tree. For example, dadap may be planted 8′ x 8′ and usually carries only one vine per tree. Larger trees carry more than one vine, but are planted further apart.

SHADE: Whether shade is essential for black pepper is a vexed question, and no doubt depends on the growing conditions. Mature cacao, for example, gives best results without shade under ideal conditions, but may fail to survive under poorer circumstances unless shade is provided.

In Indonesia, pepper is generally grown on artificial supports without shade, but

Productive pepper vines, Naduruloulou. Vines grown from cuttings may yield a commercial crop in their third or fourth year, and are in full bearing at seven to ten years.



Close-up of a pepper spike. The berries are green when just formed, turning yellow and then red when fully ripe.

in India and Ceylon the general consensus of opinion is that some shade is necessary.

Jamaican experience suggests that shade is necessary in the early years of the plantation, but that when the pepper begins to bear, the shade can be more or less removed and reliance placed on the shade cast by the vines themselves. In conjunction with mulching, the shade also helps to keep the soil cool.

CULTIVATION: In order to obtain reasonable yields from pepper vines a fairly high level of nitrogenous manuring is essential. Suitable manures are dung, compost, oil cake, fish meal, guano, etc., as well as artificial dressings.

Mulching, too, is particularly beneficial, especially during a dry spell. Being shallow rooted, black pepper responds well to heavy mulching with banana trash, dried grass, waste vegetable matter and so on.

As the vines grow and branch they should be carefully but firmly tied to the supports, the tie being made at the node so that it is firmly pressed against the support. Clinger roots will then grow out at these points and grip the supports.

Periodic pruning is necessary as the plant grows, to prevent it from becoming bushy at the top and to encourage the growth of side branches.

Harvesting

The harvesting season is spread over several months, and in the Southern Hemisphere begins about May. The vines (from cuttings) may bear a commercial crop in their third or fourth year and are in full bearing at seven to ten years. The life of a vine varies according to the conditions under which it is grown, but most authorities reckon on twelve to twenty years, although a productive life of twenty-five to thirty years is not unknown.

The berries are green when first formed on the spike, turning yellow and finally red when fully ripe. For the production of black pepper the berries are picked while still green or turning yellow. If the pepper is intended for the preparation of white pepper the berries are not harvested until bright red, i.e. completely ripe.

In Sarawak, three-legged ladders are employed when the berries are too high for the pickers to reach from the ground. The berries are plucked with both hands so that the small, tender side branches are not damaged. It may be necessary to pick over each vine once a week during the main harvest season. In Jamaica a picker can gather about 60 lb. of green berries a day, which, on drying, amounts to about 20 lbs. of black pepper.

Preparation

BLACK PEPPER: The simplest method of preparing black pepper is to gather the spikes when only a few of the berries are ripe and red, and to spread them out on mats in the sun to dry. The pepper needs to be turned frequently, or trouble with mildew is sure to be experienced. In fact, unless sun-drying conditions are good, damage from mildew is likely to be the main complaint.

A better method is to dip the freshly-gathered berries, from which the stalks have been separated, in boiling water for a few minutes, and then to spread them out in the sun to dry. The boiling treatment hastens the death of the berries and causes a rapid blackening of the skins; the pepper is said to dry more quickly under these conditions. The boiling treatment also renders the skin tougher and gives the pepper a better colour.

The alternative to sun-drying is of course some form of artificial drying. In Indonesia, smoke sheds are commonly used in wet districts where sun-drying of pepper is impracticable (private communication, 1957). One method used by Chinese growers consists of spreading freshly-plucked spikes over the floor of the drying chamber to a depth of 6″-12″; water is then sprinkled over the layer of green pepper and the whole is covered over with gunny bags. A fire is lit beneath the slatted floor supporting the layer of pepper, and, by covering the fuel with a layer of damp earth, is made to produce a dense volume of cool smoke. The pepper is subjected to this treatment for twenty-four hours, during which time it turns black. The gunny

(continued on page 64)

SPC ECONOMIC DEVELOPMENT MEETING PARTICIPANTS: Front row (l. to r.): Mr. E. R. Bevington, Mr. M. J. Phillips, Mr. J. C. Okiyama, Dr. J. Barrau, Mr. H. H. Reeve, Mr. T. R. Smith, Mr. J. Fonteney, Ratu P. K. Ganilau. Middle row (l. to r.): Mr. L. M. Davies, Mr. R. Langlois, Mr. R. H. Boyan, Mr. V. D. Stace, Mr. H. R. Lutz, Mr. J. Huber. Back row (l. to r.): Mr. A. W. Elvery, Mr. A. G. Mitchell, Mr. L. K. Pitt, Mr. L. Anderson, Mr. G. Mansfield, Hon. M. U. Tupouniua.

Economic Development In The South Pacific

One of the most important meetings in the field of South Pacific development yet organized by the South Pacific Commission was held at its headquarters in Noumea last month, when twenty-one experts in financial and economic affairs met to discuss ways and means of promoting the economic progress of the region.

By JACQUES BARRAU*

THE problems and possibilities of actively promoting the economic development of South Pacific territories, and of ensuring that Pacific islanders play a greater part in the economic progress of the region, were studied at a technical meeting held at South Pacific Commission headquarters in Nouméa from March 12-22.

Economic and financial experts from thirteen territories took part. Mr. H. H. Reeve, Assistant Administrator (Economic Affairs) in the territory of Papua and New Guinea, was elected Chairman. Two observers attended from the Reserve Bank of Australia—a senior adviser from the head office in Sydney and the research economist of the Port Moresby branch. The meeting was organized within the scope of the activities of the economic development section of the South Pacific Commission.

The participants included several distinguished representatives of the islands—Masiofo Fetaui from Western Samoa, the Honourable Mahe 'Uli 'Uli Tupouniua, Treasurer and Minister of Finance of the Kingdom of Tonga, and Ratu Penaia Ganilau, D.S.O., O.B.E., member of the Fiji Legislative Council. Masiofo Fetaui attended a short session of the meeting to introduce the paper presented by Western Samoa.

Official Opening On March 12

That the South Pacific Commission regarded the meeting as an extremely important one was stressed by the Secretary-General, Mr. T. R. Smith, at the official opening on March 12. "It is clear", he said, "that most territorial administrations are of the same opinion. Thirteen Pacific territories are represented, and in four cases the senior representative is the deputy of the territory's chief executive, while Tonga has sent her Minister of Finance".

The objectives of the meeting defined at its twenty-second (1961) Session by the Commission were two-fold:

(i) to compare territorial experiences on development activities directly and primarily promoting the material welfare of the islanders; and

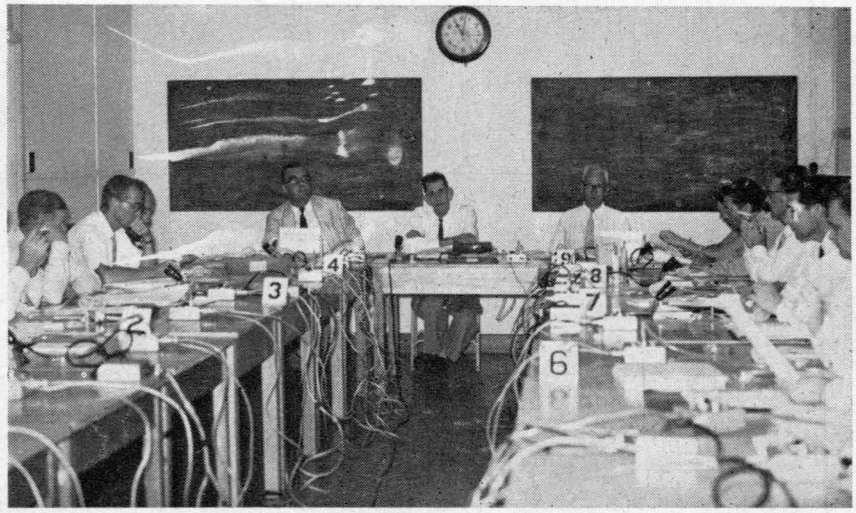
(ii) to formulate essential requirements of development programmes adapted to existing South Pacific island conditions, taking into consideration further activities of the Commission in this field.

The Main Problems

The first task of the meeting was to define the main problems of economic development in the South Pacific area. While pointing out the absence of regional uniformity in this field, the meeting examined and reported on basic problems related to manpower surpluses and shortages, land tenure, low productivity in agriculture, current difficulties in diversifying exportable products, and regional marketing and transport situations.

Discussions mainly centred around specific aspects of economic development in the region: capital formation, economic programming and planning, trade and marketing, industrial development and employment promotion. In the discussions on employment promotion, aspects examined included urban employment problems due to population drift to

* Executive Officer for Economic Development, South Pacific Commission.



Above: Mr. H. H. Reeves (right) of Papua and New Guinea was elected chairman. At left is Dr. Jacques Barrau, SPC executive officer for economic development, who organized the meeting. Right: The meeting in progress.

the towns, promotion of secondary industries, and the role in the region of banks and financial institutions, and of co-operative loan and saving societies.

The meeting expressed considerable misgiving at some of the economic implications of the population explosion occurring in some territories of the area, where, in extreme cases, annual rates of population growth now reach 4% per annum, while the world average annual rate is only 1.6%.

In its recommendations for dealing with these various problems, the meeting stressed the importance of ensuring the participation of islanders (who represent 95% of the South Pacific population) at all levels in development schemes. It underlined the urgent need to promote the training and education of the indigenous people in the advantages of using income, credit and savings productively.

The scope for future action by the South Pacific Commission in promoting economic development in the region was also considered, and several recommendations were put forward.

The report, which includes some thirty-five specific recommendations, has been submitted to member governments and territorial administrations. Further consideration will be given to its findings at the twenty-fourth session of the Commission, to be held next October.

Suva Expects Record Crowds

(continued from page 27)

The Education Department has offered to make Government school hostels at Suva available for housing Games competitors, and an accommodation committee is to organize an accommodation information service. A publicity committee is planning overseas advertising and other forms of publicity for the Games. Fund raising for the Games is to be in the hands of a finance committee.

SPC ECONOMIC DEVELOPMENT MEETING: Participants

TERRITORIAL REPRESENTATIVES

AMERICAN SAMOA

Mr. H. R. Lutz, Bank of American Samoa.

BRITISH SOLOMON ISLANDS and GILBERT AND ELLICE ISLANDS

Mr. L. M. Davies, Senior Assistant Secretary of Finance, Western Pacific High Commission.

COOK ISLANDS

Mr. L. K. Pitt, Secretary to Cook Islands Government.

FIJI

Mr. E. R. Bevington, C.M.G., Development Commissioner

Ratu P. K. Ganilau, U.B.E., D.S.O., Administrative Officer and member of Legislative Council of Fiji. (Observer).

FRENCH POLYNESIA

Mr. J. Huber, Secretaire-General de la Polynesie Francaise.

GUAM

Mr. J. C. Okiyama, member of the Guam Legislature.

Mr. William Flores (Adviser).

NETHERLANDS NEW GUINEA

Mr. L. G. Hoornweg, Deputy Director, Department of Economic Affairs.

NEW CALEDONIA

Mr. G. Poulet, Secretaire-General de la Nouvelle-Caledonie.

Mr. J. P. Fonteney, Chef du Bureau du Plan aux Services des Affaires Economiques. (Alternate).

Mr. B. Charuel, Directeur de la Caisse Centrale de la Cooperation Economique (Observer).

Mr. J. Herry, Chef du Bureau des Nouvelle-Hebrides et des Iles Wallis et Futuna (Observer).

Mr. Y. Attali, Directeur du "Credit de la Nouvelle-Caledonie" (Observer).

NEW HEBRIDES CONDOMINIUM

Mr. A. G. Mitchell, D.F.M., Administrative Officer.

Mr. R. Langlois, Administrative Officer.

PAPUA AND NEW GUINEA

Mr. H. H. Reeve, Assistant Administrator (Economic Affairs).

Mr. G. Mansfield, Department of Territories, Canberra (Observer).

TONGA

The Hon. M. U. Tupouniua, Treasurer and Minister of Finance.

U.S. TRUST TERRITORY OF THE PACIFIC ISLANDS

Mr. Lawrence Anderson, Assistant District Administrator, Palau District.

WESTERN SAMOA

Masiofo Fetaui.

OTHER PARTICIPANTS

RESERVE BANK OF AUSTRALIA OBSERVERS

Mr. M. J. Phillips, Research Economist, Reserve Bank of Australia, Port Moresby, Papua and New Guinea.

Mr. A. W. Elvery, Adviser, Reserve Bank of Australia, Sydney, Australia.

SOUTH PACIFIC COMMISSION

Dr. J. Barrau, Executive Officer for Economic Development.

Mr. V. D. Stace, Economist.

Mr. R. H. Boyan, Co-operatives Specialist.

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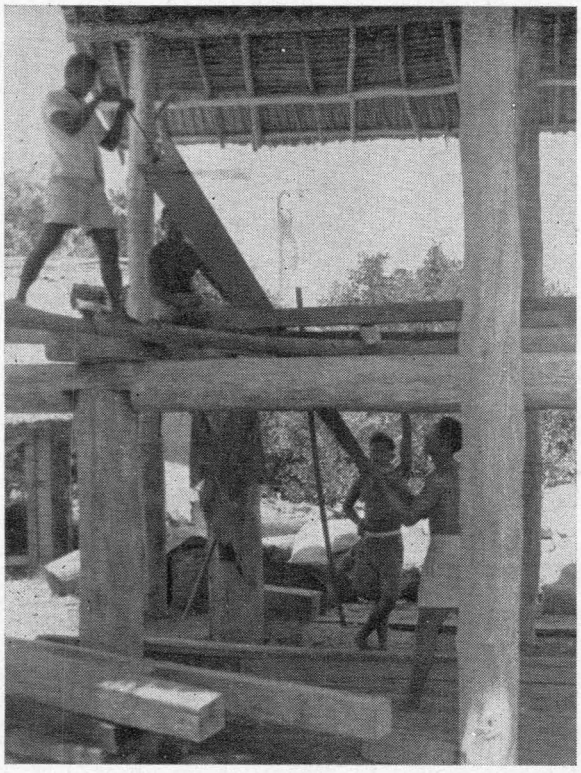
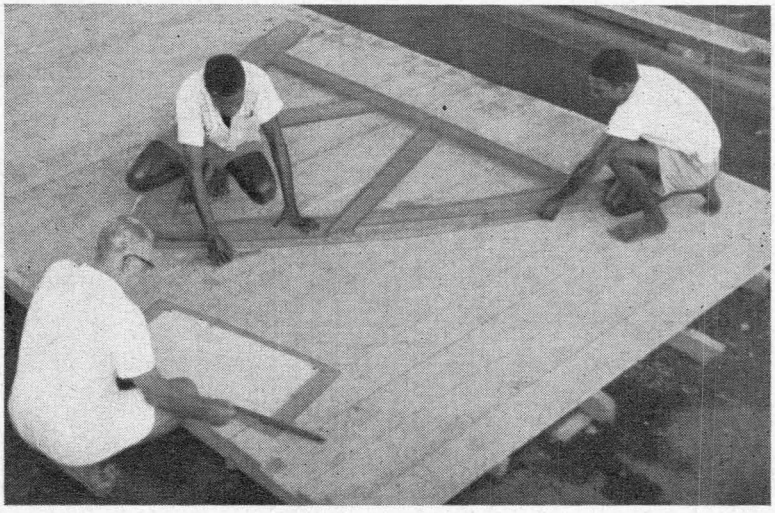
Islanders Become Skilled Boatbuilders



". . . How, then, is it that this School has been so successful?" asks the author in this article, which he wrote after a visit that he made recently to the SPC Boatbuilding School at Auki, in the British Solomon Islands. He answers his own question: "My conviction is that all trainees and the instructor share a common driving enthusiasm for small wooden boats".

By ARTHUR N. SWINFIELD*

Left: Trainees pit-sawing stringers. Below: Checking moulds from the plan and scrieve board.



I RECENTLY visited the SPC Boatbuilding School at Auki, where in a little over a year the Director, Mr. Cecil Fisher, has moulded twenty-four Pacific Islanders, enrolled from six territories, into a first-class boatbuilding team.

To the layman, the completion of three 26′ auxiliary cutters in around fifteen months may seem quite good progress. Any professional boatbuilder or technical school teacher would, however, be amazed to learn that, in that time, twenty-four raw trainees had carried out the following programme with complete success:

—Every trainee assisted in the erection of the workshop—a structure capable of accommodating four large cutters under construction at one time—and with the installation of all necessary power machines, including a planing machine, circular saw, bandsaw, jointer, and grinding machine.

—The trainees were next taught the principles involved in pit-sawing timber from logs, and then proceeded to cut all the necessary timber for keels, hogpieces, stems, stern frames and stringers.

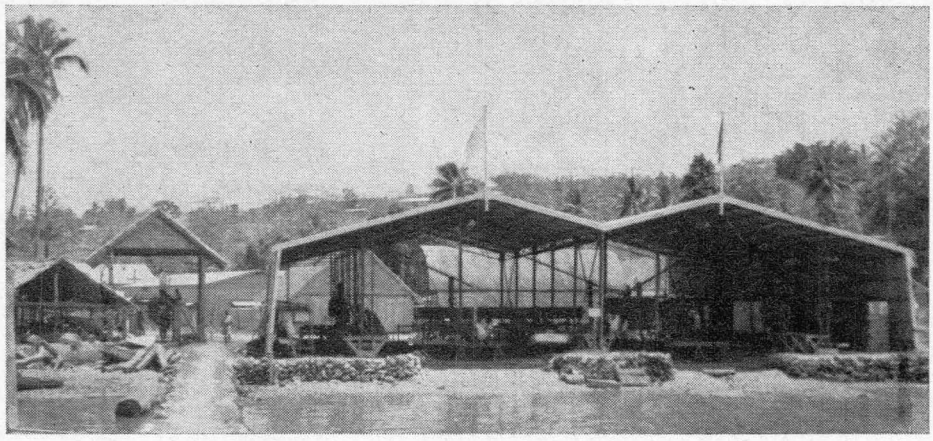
—They then lofted all necessary 'lines' from the drawings supplied by the architect and made the necessary templates.

—Finally, they built three 26′ cutters, complete with engine beds, masts, etc., installed the engines, and rigged the vessels.

The three vessels, ready for fishing service, were handed over fifteen months from the day that the trainees and their director-instructor arrived on a vacant block of waterfront land.

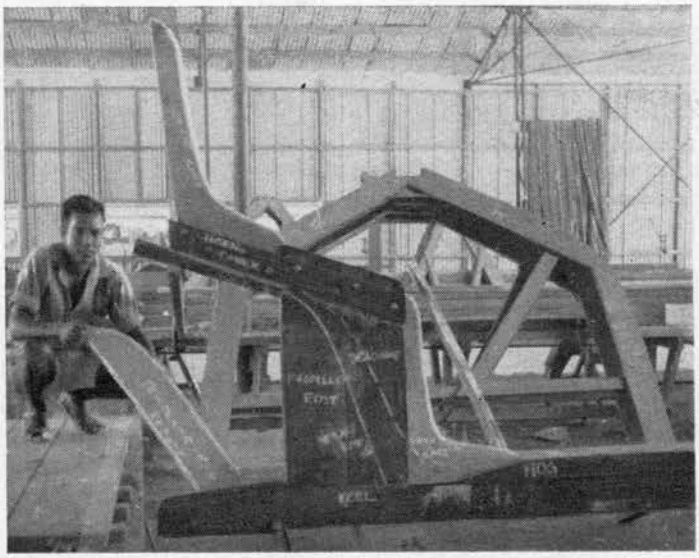
I had followed the progress of the School from its inception, and my expectations were far more than exceeded by these results. Every credit must be accorded both Director and trainees.

The actual pattern of the training scheme is perhaps worthy of note, for while it does not follow the usually



The SPC Boatbuilding School at Auki. Pit-sawing shed on left.

* Mr. Swinfield is a prominent Australian naval architect with wide experience in designing small ships for the Islands, and in teaching Pacific Islanders how to build them. He designed the 26′ cutter, of which no less than seven have been, or are being, built at the SPC Boatbuilding School at Auki, to the order of the British Solomon Islands Government (three as fishing boats and four as touring vessels).



Above: Stern frame of cutter. Student is holding a template. Right: Trainee fitting template of garboard plank.

accepted mode of technical training, yet it produces excellent results.

It is based purely on practical tuition; there is no preliminary grounding in theory. On the first day of his course the trainee actually begins to build a boat. He sees the vessel grow, and even the obstacle of language is quickly overcome as each trainee assists the other in the common language of boatbuilding terms, and the associated "jargon".

At Auki, additional proof that this technique works has been provided by several Solomon Islanders living near the School. Keenly interested in boatbuilding, though untrained, they sought—and were given—unofficial guidance and practical demonstrations. They are now successfully building cutters up to 30′ long in their own villages.

Actually, the training pattern being used at Auki was first tested and proved sound at two small technical schools set up in Papua about 1930 under a training scheme sponsored by the Administrator, Sir Hubert Murray. Mr. Cecil Fisher was in charge of one, and the author of the other.

Sir Hubert Murray was convinced that Papuans could readily learn to build orthodox wooden vessels provided they were taught in a practical way by understanding teachers. It is now a matter of record that his views were very sound, for some very fine wooden vessels were built both at Kwato Mission and Fife Bay Mission, many of which are still in service.

Trainees' Enthusiasm The Key

During my short stay at Auki I was able to study the trainees, both as men and pupils, and I could not help comparing their enthusiasm and desire for knowledge with that of the average technical student of my own time.

During my own apprenticeship I was taught my trade by fully-qualified and highly-skilled tradesmen, and as I progressed in the art of boatbuilding I gradually assimilated more and more knowledge and confidence, until such time as I had served an apprenticeship of five years and became a fully-fledged journeyman boatbuilder.

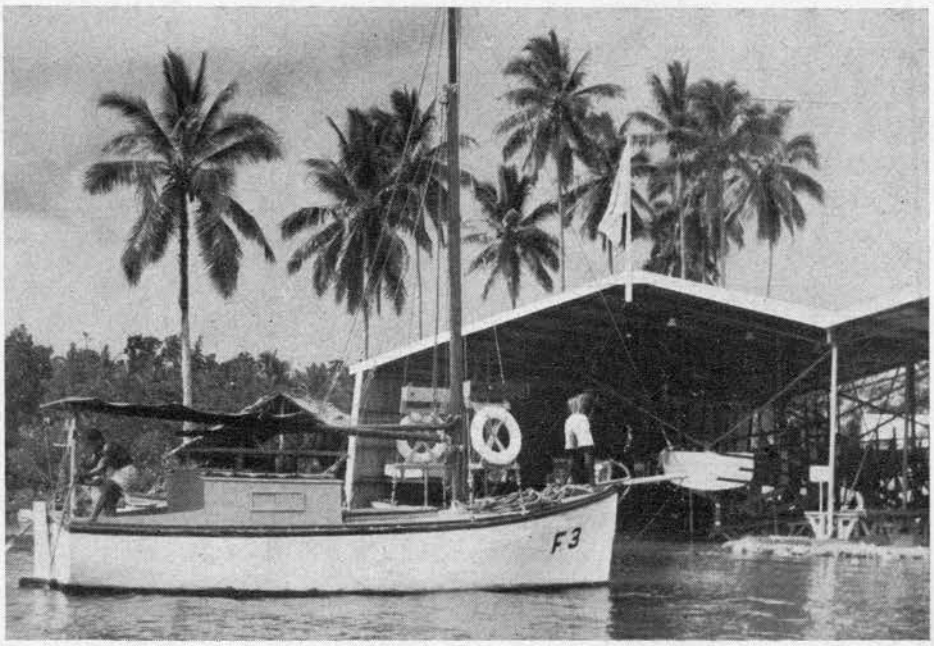
Note that I served five years. The School at Auki, however, is managed and directed by only one fully-qualified boatbuilder whose work it is to teach twenty-four trainees as well as manage and organize their everyday life. Food and laundry have to be attended to, and, needless to say, advice of all kinds is sought from time to time.

How, then, is it that this School has been so successful? My conviction is that all trainees and the instructor share a common driving enthusiasm for small wooden boats.

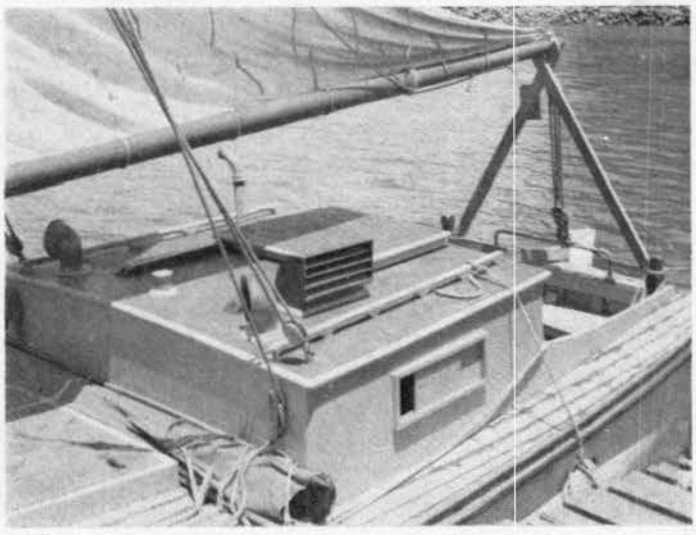
Every day is another chance to learn more of the art of boatbuilding, and nothing stands in the way of this desire. Every step in the construction of these small craft is patiently explained by the instructor, and carried out with care by the trainees. But this, I noticed, was not all. Each trainee was willing and anxious to share his knowledge with his teammates, and inferior work was severely censured.

Four More Cutters Being Built

At the time of my visit the School had completed three 26′ cutters and were engaged in the production of four more



"F3" ready for service. She was the last to be completed of the three 26′ cutters which comprised the first order executed by the School. Four more vessels are now being built to the same hull design.



Above: Deck views of the first cutter built at the School.

Left: Designer and builder inspect the first cutter—Mr. Arthur Swinfield (left foreground), naval architect, and Mr. Cecil Fisher (left background), Director of the Boatbuilding School. At right is Mr. Ronald Powell, Fisheries Officer of the Cook Islands, and co-Director of the SPC-FAO Fisheries Training Centre in progress at Malaita at the time of Mr. Swinfield's visit to the Solomons.

similar hulls. The twenty-four trainees were divided into four teams, each of which had a leader, or charge hand. While three teams were engaged in making moulds and templates, etc., the fourth pit-sawed timber ready for keels, hogpieces, etc. Because of its arduous nature, pit sawing was shared among the four teams, and no one was allowed to avoid this part of the programme.

In five days while I was there, the trainees laid the keels of four cutters, erected the longitudinal framework of three, set up all moulds, cut the rebates ready for the garboard planks, and fastened the necessary ribands to the moulds, ready for the bending of the frames.

The team on the fourth cutter was busily engaged pit-sawing stringers for all boats, and was due to commence construction of their own vessel on the day of my departure. This was a week of real progress.

Excellent Accommodation

The accommodation provided for the trainees is excellent, comprising dining room and kitchen, and dormitory with showers and toilets. The trainees engage cooks and helpers of their own choice, and seek the guidance of the instructor only when absolutely necessary.

They have also organized their own soccer team, and last season competed in the local football competition under the name of U.P. (United Pacific). They won the competition after having proved themselves excellent sportsmen on and off the field.

An interesting point is that almost every Christian denomination is included among the students, as well as the Moslem religion, while the languages include English, French and Dutch. Truly they are representatives of "United Pacific".

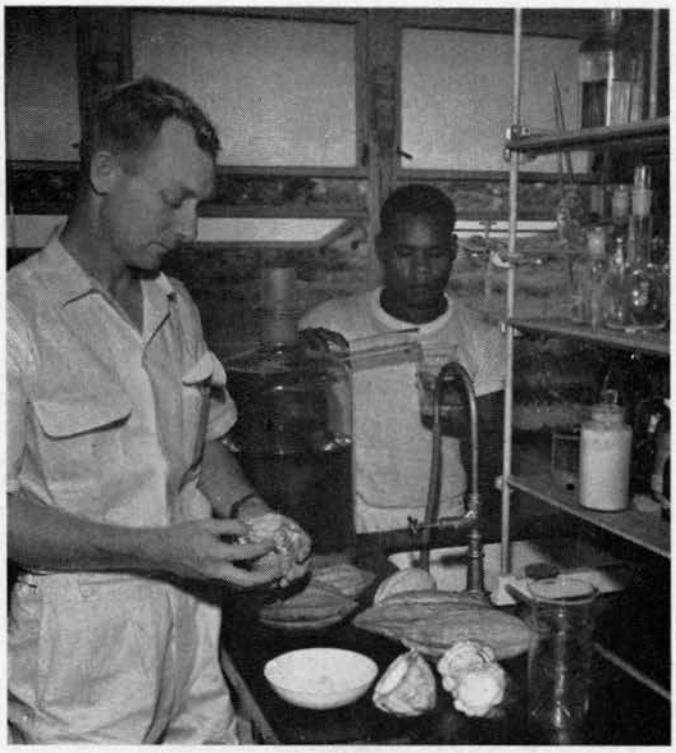
* * *

After many years of experience in teaching practical and theoretical boatbuilding, I am convinced more than ever, after my recent visit to Auki, that more and more of these boatbuilding schools are needed in the South Pacific. Properly sponsored, directed, and equipped, they would prove of real value in providing the skilled craftsmen and additional general-purpose small vessels so badly needed in most territories.

Tilapia Thriving In Tarawa

A further attempt to introduce the prolific fresh-water pond-fish, *tilapia mossambica,* to Tarawa Atoll, in the Gilbert and Ellice Group, has brought encouraging results. An earlier attempt was unsuccessful because of the high salinity of the water in the pond where the fish were introduced. This time a new pond was dug at Betio for the experiment. Sixty fingerlings were recently received by air from Fiji, and with the exception of a few which died on the journey, all are now thriving.

In due course it is intended to stock a large proportion of the numerous fishponds in the Colony with tilapia, which has already been successfully introduced to Christmas Island.



Above: An agricultural assistant gives a ploughing demonstration during the planting of a taro plot. Cook Islands.

Right: A biochemist and his assistant analyzing the mucilage from cocoa beans during experiments to develop improved methods of fermenting cocoa. Kerevat Agricultural Experimental Station, near Rabaul, New Britain.

Agricultural Extension Development In The South Pacific

At a meeting held under SPC auspices at Rabaul last November, senior agricultural officers from twelve Pacific territories discussed ways and means of developing agricultural extension work in the region. The report of the meeting is reviewed below by . . .

V. D. STACE*

AT the Malaguna Technical Training Centre near Rabaul in New Britain, some twenty-five delegates representing agricultural extension services of twelve South Pacific territories came together in mid-November for a twelve-day conference under joint SPC-FAO auspices.

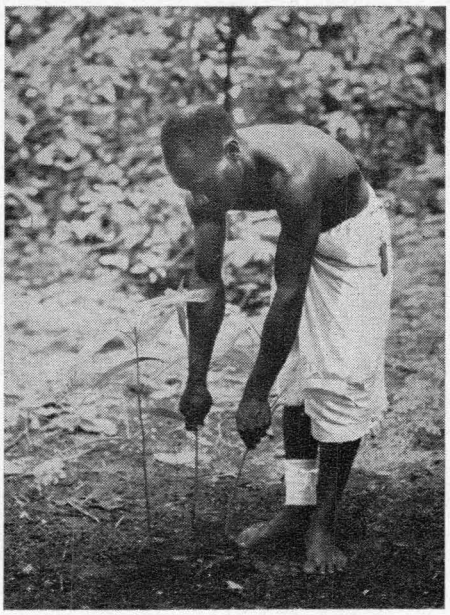
In addition to the territorial directors of agriculture and the extension specialists present as delegates or observers, Dean C. W. Chang, Agricultural Adviser for Asia and the Far East of the Food and Agriculture Organization of the United Nations, Bangkok, participated as consultant. Dean Chang also assisted the convenor, Dr. J. Barrau, Executive Officer for Economic Development of the South Pacific Commission, and the Chairman, Mr. W. L. Conroy, Chief of the Division of Extension and Marketing of the Department of Agriculture, Papua and New Guinea, in the planning and administrative work of the meeting.

As was intended, a very important aspect of this technical meeting was the opportunity it provided for those responsible for the development of agricultural extension services throughout the South Pacific to exchange ideas and discuss their problems. To some of the delegates from the smaller, more remote territories this was a unique opportunity for sharing experiences. It was obvious that very full advantage was taken, at the conference table and during recess, to compare local achievements and seek ideas for meeting the various problems of territorial extension services.

In addition to the ties of mutual interest in Pacific Islands agriculture shared by the participants, it was quite apparent that they also shared a special insight and deep personal interest in the economic problems of the indigenous peoples of the region. As the Administrator of Papua and New Guinea, Brigadier Sir Donald Cleland, pointed out in his opening address, agricultural extension in the South Pacific "is a task which brings workers in this field closer than any others to the dominantly rural populations of our countries, and one which can prove most personally rewarding to dedicated men".

In addition to providing territorial directors of agriculture and senior specialist officials with an opportunity to discuss working objectives and problems in a regional context, the meeting was charged with specific tasks of special importance. The first was the requirement of its terms of reference, which called upon it to make recommendations and suggestions to territorial governments concerning the types of organization and the methods which could be used most profitably in developing agricultural extension services in South Pacific territories. The complementary task was to

* Economist, South Pacific Commission.



An agricultural assistant at Kerevat Agricultural Experimental Station thinning young cocoa. The general practice is to plant three beans and then remove the two less-promising seedlings when about four months old.

Rhinoceros beetle control in Western Samoa. About half-a-dozen four-foot lengths of coconut palm trunks are split through the centre, and placed on the ground flat side downwards. Teams of searchers lift these log-traps at regular intervals and destroy the rhinoceros beetles and larvae found underneath.

advise on an appropriate future role for the South Pacific Commission in this field.

A Blueprint For Future Action

The report of this meeting is essentially a blueprint for future action. It contains much interesting factual and descriptive information on South Pacific agriculture and agricultural extension techniques as applied in the region, mainly as background for specific recommendations. The report itself, however, does not attempt a detailed review of the current status of agricultural development in various territories of the region, although such a review of territorial conditions and problems was a preliminary activity of the meeting. Various papers on current extension programmes in the territories contributed by participants are, however, available on request as supplementary documents to the report.

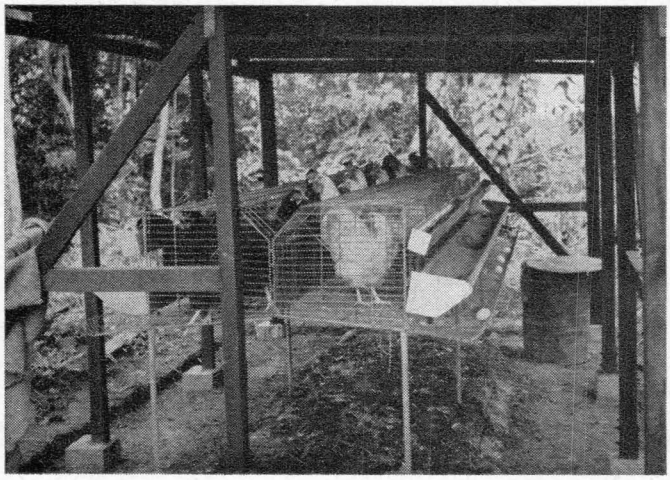
In its introductory sections, the report defines agricultural extension quite simply as out-of-school education whereby rural people are persuaded to achieve better farming, greater efficiency in their business activities, and higher living standards. Success in achieving these objectives was held to require the voluntary but active participation of the rural people, the development of a system of lay leadership from among the people themselves, and the adoption of effective forms of rural organization. As elsewhere, agricultural extension in the South Pacific was shown to be dependent on the continuing support of appropriate experimental stations and training institutions.

Some Regional Problems

Of the major problems now facing agricultural extension development in the South Pacific, the meeting drew special attention to the difficulty encountered in most territories by usually under-staffed extension services in establishing close or frequent contact with widely-scattered rural populations.

Lack of suitably-trained indigenous field staff, and shortages of materials, equipment and finance were considered to be common problems, while activities in most territories were circumscribed by various problems arising from the conflict between traditional practices in village agriculture and modern scientific methods, the economic limitations of customary systems of land tenure and land use, and the difficulties of communicating

At the Navuso Agricultural School near Suva, selected young Fijian trainees take a special three-year course during which they live and work as farmers. Left: Two trainees share this cottage, around which they are growing cash and subsistence crops. Right: A modern poultry house. Each trainee takes care of a small flock of poultry.



new ideas in village communities with low standards of general education, aggravated by language barriers.

Some territories faced special problems in the frequent turnover of their expatriate professional staff and also in a lack of collaboration and co-operation between the agencies, either official or private, responsible for extension work of various kinds in rural areas.

In tackling such problems the meeting recognized the important advantage to be obtained from the definition of clear and authoritative statements of the policy and objectives for agricultural extension services in the various territories. There was general agreement that a sound precedent for such action has been provided in the recent official pronouncement of the aims of agricultural extension in Papua and New Guinea.

Without discounting in any way the widely-recognized need in the region for development programmes designed to expand and diversify agricultural production for local sale and export markets, the report drew special attention to the important part that subsistence agriculture still plays in supporting the living standards of Pacific Islanders generally. The meeting considered that it was of basic importance for all agricultural extension personnel to have a knowledge of the traditional patterns of agriculture and the land tenure practices of the territory concerned, so that development plans could be formulated on lines acceptable to the indigenous cultivators and traditional leaders of native rural societies.

It was stated in the report that the training of local native staff in adequate numbers as extension workers at all levels was an essential element in "bridging the gap" between a territory's agricultural services and the indigenous farmers on the land. The importance of promoting voluntary rural lay-leadership for agricultural extension purposes by selection from the ranks of the more enterprising, successful and respected members of native rural communities was also strongly advocated.

In training programmes at the village level it was pointed out that special attention should be paid by extension personnel to advancing the knowledge and skills of such rural lay-leaders by study tours to demonstration stations and neighbouring farming communities, as well as through participation in discussion groups and village agricultural committees.

Agricultural assistants in the Cook Islands planting out young citrus trees from an Administration nursery.

Rural Credit

In recent years in the South Pacific, the first rather tentative steps have been taken to provide loans to islanders to stimulate their progress in agriculture. In commenting on this situation, the meeting drew attention to the advantages of appropriate credit facilities, not only to finance improved farming techniques under supervision, but also to introduce effective incentives in rural areas at an early stage in the development work on native smallholdings.

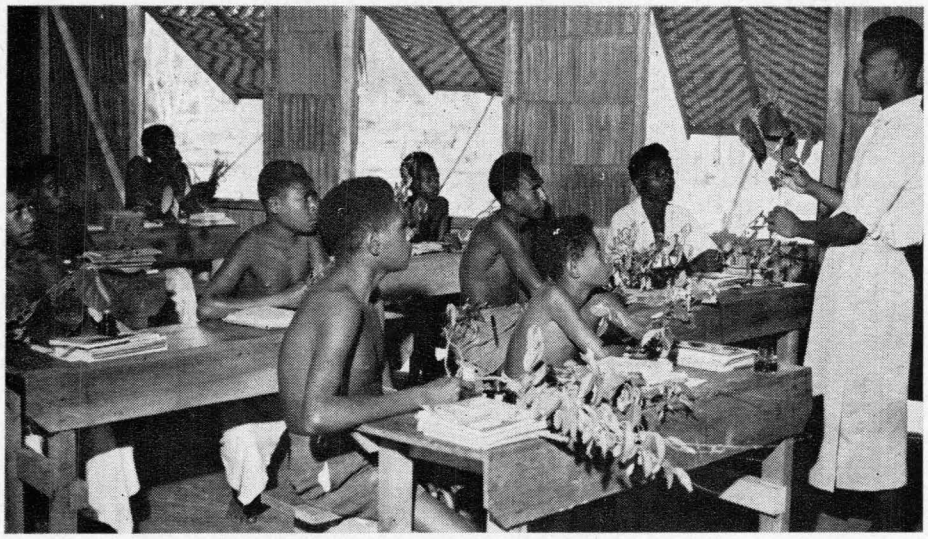
While the essential role of rural credit in metropolitan countries and on European plantation estates in the South Pacific is widely appreciated, the participants at the meeting agreed that the need for similar forms of credit in native land development is, as yet, inadequately recognized in the region. To some extent this deficiency was held to be due to a lack of information on the economics of smallholder farming in the region, with particular reference to the credit needs, "credit-worthiness", and the managerial capacity of native farmers as well as the earning potential of their farms.

In general, the meeting considered that territorial administrations in the South Pacific could, and should, go much further in linking agricultural extension services with appropriate credit and marketing facilities.

Programmes And Administrative Organization

On more technical matters such as

A mob of young cattle at the Western Highlands Livestock Station at Baiyer River, New Guinea. The Department of Agriculture, Stock and Fisheries in the territory maintains livestock stations to carry out experimental work in animal husbandry, build up breeding stock for general distribution, and to serve as disease control points.



Young Papuans train to be farmers—a botany class at the Oriomo School in Western Papua. The school is located at the Oriomo Agricultural Station so that the students can benefit from instruction by resident and visiting agricultural officers.

working relationships between agricultural research and extension activities, the production of extension material and teaching aids, and extension teaching methods, the meeting put forward a series of recommendations for more effective procedures and for the provision of technical assistance and regional clearing-house facilities by the South Pacific Commission.

In its recommendations on the planning of agricultural extension programmes and the organization and administration of extension services, the meeting enunciated a series of basic principles for the guidance of territories, stressing the need for co-ordinated activities and the maintaining of continuing association in programme planning with other government services operating in rural areas.

It was advocated that in the elaboration of any major agricultural extension programme, careful consideration should be given to the development of parallel programmes in such fields as marketing, training and the provision of credit facilities which are intimately related to agricultural extension. In South Pacific territories, such services must frequently go beyond introducing new economic crops and livestock, and assisting in the disposal of marketable produce. It is often necessary for extension services to introduce and assist in the financing and operating of agricultural equipment, and the transport and storage of produce from remote areas. It may be necessary also to broaden the educational aspects of agricultural extension programmes to include the instruction of Pacific Islanders in technical and commercial procedures.

The meeting considered that experience in the South Pacific showed that agricultural extension programmes were too often approved "subject to the availability of funds". Notwithstanding the high priority afforded rural progress in overall development policies, practical agricultural extension programmes tended to suffer undesirably under the pressure of annual budgetary exigencies. An associated problem was the fact that in some areas, field level workers, and sometimes local supervisors, were often paid inadequately, so that the recruitment and retention of such staff was rendered difficult and standards of performance suffered.

Scope For Commission Assistance

In addition to seeking a revival of the information service on current agricultural research in the region formerly provided by the South Pacific Commission, the meeting recommended that the Commission also compile a *Directory of Agricultural Research* as a special project.

As a preliminary step in the elaboration of agricultural development programmes, accurate analyses are needed on the physical and human resources available for development, on the scope of prospective markets, and the overall problems of economic advancement in the territory concerned. The meeting recommended that the Commission circulate technical information on the methods used in such surveys, and also provide technical assistance for the organization and conduct of such surveys, including agricultural censuses.

The Commission was specially commended for its assistance to the coconut palm experimental station on Rangiroa Atoll in French Polynesia, and for its dissemination of scientific information from this source. The need for additional research of this type, and, in particular, the need to investigate farming systems which could be a suitable and effective substitute for the widely-used system of subsistence food-crop production associated with bush-fallow rotation, was singled out for future attention by the Commission.

A special request was made also for Commission assistance in promoting regional co-operation in the field of agricultural training by organizing training centres for extension personnel, inter-territorial study tours and visits for extension personnel at all levels, and an inter-territorial exchange system for students and subordinate staff-in-training. The compilation of a special *Directory of Agricultural Training* by the Commission was considered to be a valuable first step in such a programme.

The meeting also saw scope for additional Commission technical help for the territories in further developing its facilities for the producton and distribution of extension materials and visual teaching aids, including the establishment of clearing-house facilities for an inter-territorial exchange of films and other agricultural demonstration media for group instruction.

Reflecting the participants' view on the value of such opportunities for the interchange of ideas and information, the meeting recommended that further meetings under Commission auspices should be held at intervals, beginning with a working party meeting in about two years' time dealing with some more or less specialized aspect of agricultural development of importance to the region.

A Valuable Report

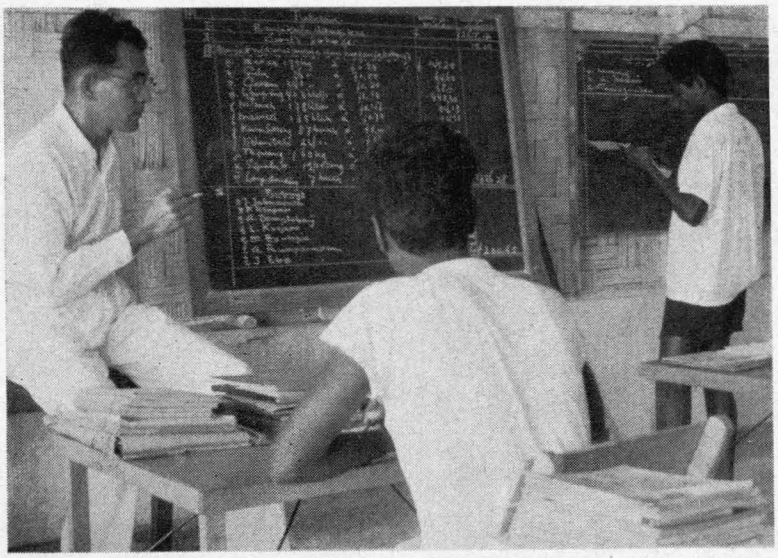
The report of the meeting gives ample evidence of the wide knowledge of the participants concerning the economic and social conditions obtaining in the rural areas of the Pacific, where more than 90% of the inhabitants of the region live in relative obscurity. This special knowledge of those who participated can be relied on to give considerable weight to the recommendations put forward by the meeting for consideration by territorial governments and the South Pacific Commission.

Pilot Project In Health Education

On March 14, Miss Liliane Geisseler, SPC health education officer, left Commission headquarters by air for Tahiti, where she will stay until the end of May. She is taking part in organizing and launching a pilot project in health education, in the field of maternal and child health. She is working in co-operation with the directors and staff of the Health and Social Services, and the Medical Research Institute.

Dr. Guy Loison, newly-appointed head of the Commission's health section, also left Noumea on March 14, for brief introductory visits to Fiji. Western Samoa, American Samoa, and French Polynesia. While in Tahiti he will discuss with the local authorities the final arrangements for the pilot project that Miss Geisseler is assisting to organize.

Encouraging Business Enterprise Among Papuans



A book-keeping lesson in progress during a co-operative training course held at Manokwari.

In Netherlands New Guinea, a special Bureau has been set up to promote industrial and commercial enterprise among Papuans. How it operates is described below by . . .

P. J. van DOOREN*

IN Netherlands New Guinea, the economic development of the indigenous people is not confined to increasing and improving the products of agriculture, forestry and fisheries, but includes also the strengthening of their economic position in the fields of transportation and sale of produce, independent of European and Chinese middlemen. The promotion of Papuan self-help in these fields by stimulating the development of an independent native trading class active in the spheres of trade, industry, handcrafts, transportation and services, is becoming an increasingly important aspect of government policy in the territory.

Agricultural extension, and the improvement and expansion of timber exploitation, have from the start been functions of the Divisions of Agriculture and Forestry of the Department of Economic Affairs. Within the ten years that have passed since their establishment, these Divisions have managed to double the export volume of native products and, by improving their quality, to treble their export value. In recent years, training combined with extension activities have resulted in the establishment in various areas of native smallholdings growing cocoa as an export crop. They are completely self-supporting, and sometimes as well grow food crops for local consumption.

Such smallholdings, involving permanent use of land and regular care for crops, are in marked contrast to the primitive form of agriculture in the coastal areas, where the native peoples shift from an area as soon as the soil is exhausted, and give little attention to crop care. Copra production from the coconut areas along the coasts of Netherlands New Guinea, most of which were planted in the old days, is also rather a matter of processing nuts collected from existing plantations than of complete coconut cultivation.

On the new cocoa farms, however, the indigenous planters will become professional farmers, and, in the future, real "farming industrialists". This involves considerable intensification of the work of the native population.

Establishment Of Government Farms

To assist the people to become familiar with improved working methods and with smallholding requirements generally, the Agricultural Extension Service will establish large government farms in sparsely-populated areas. On them, the future native farmers will be trained before being established on their own holdings nearby. In this way it is hoped that thinly-populated areas with suitable soil will be transformed into productive agricultural regions, and that at the same time skilled agricultural communities will be formed.

The first area where the establishment of such an enterprise is planned is the Grimé-Sekoli Plain between Lake Sentani and Nimboran, south-west of Hollandia. Around the government model farm an independent agrarian community will be established comprising some six hundred family farms, each of three hectares[1].

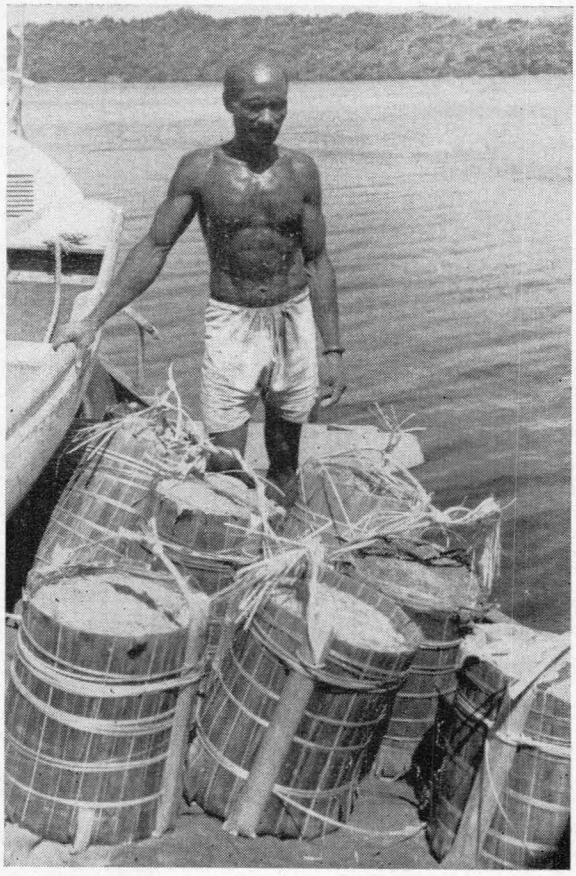
In other regions, efforts are being made to introduce animal husbandry on native smallholdings. Farms purely for stock-breeding purposes could not yet be operated by the Papuan people to whom cattle, horses and goats were until re-

* Dr. van Dooren is Head of the Bureau for the Development and Organization of Indigenous Industrial and Commercial Enterprise, Department of Economic Affairs, Hollandia.

[1] One hectare equals 2.47 acres.

A Government loan enabled the Erping Co-operative Society in the Hollandia District to purchase this motor vessel.

Bagging copra for transport at a copra marketing co-operative society.



A Papuan sago trader transporting a cargo of sago from Geelvinck Bay to Biak.

cently unknown, and who must still get accustomed to these animals. Mixed farming, in which the animals can be used as traction, has better prospects.

To stimulate stock breeding by the local population, the Administration makes breeding stock available to interested Papuans. In payment, they are obliged to give a proportion of the issue to the Division of Animal Husbandry[2]. In this way the stock-breeder develops his own livestock, while the Division always has young animals available for distribution. It is obvious that with this system it takes some time before large-scale results are noticeable. However, there is steady progress apparent in an increasing number of areas.

Growth Of Co-operatives

In addition to activities on the production side, a tendency has developed among Papuans towards the marketing of their products themselves. They thus avoid dependence on middlemen and also enjoy better returns. The first of such activities developed at Rumbati, Fakfak, in 1947, when four hundred persons contributed Fls. 2.50 each as the initial capital of a lumber co-operative. Later, this co-operative, with a view to increasing its initial capital at a quicker rate from accumulated surpluses, extended its activities to include trade in sago, tobacco, and such native export products as nutmeg and mace. This co-operative was set up by local enterprise under strictly native management.

In 1951 the Administration began to encourage co-operatives in the interests of the social and economic development of the native population. By joining a co-operative the Papuans, who are economically weak and inexperienced, are able to unite in an organization that is well equipped to look after their individual economic interests.

In 1953 a Co-operative Affairs Bureau was established. Initially attached to the Department of Internal Affairs, it was later transferred to the Department of Economic Affairs. This Bureau is responsible for assisting the native co-operatives by word and deed, and is meant to assist the native population in establishing new co-operatives. In principle, however, everything is left to the self-activity of the native population and the co-operatives. As a form of economic organization the co-operative is an independent private undertaking, responsible for its commitments, activities and administration of funds.

Co-operative Courses Conducted

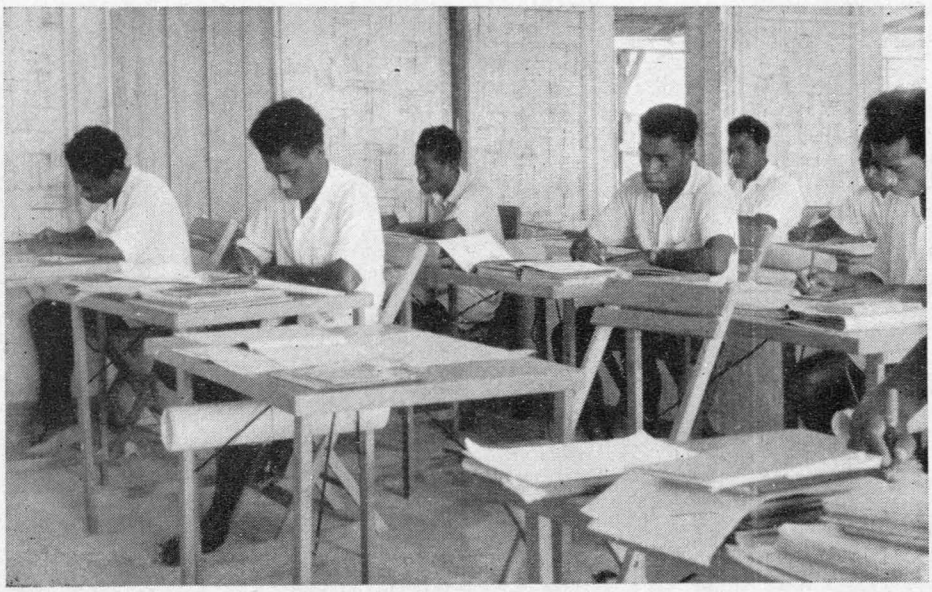
Since 1956, with a view to assisting the co-operatives to carry on their activities in a proper manner, the Bureau has conducted nine-month co-operative education courses for committee members and staff of existing and future native co-operatives. The course comprises book-keeping, business methods, shop

[2] According to the conditions of the contract, the indigenous stockbreeder has at the end of the contractual period to replace 150% of the number of received animals. Contractual period is three years for sheep and goats, five years for cattle. Up to 1 February 1962, 512 animals had been distributed, under 128 contracts.

TABLE I — *CO-OPERATIVE SOCIETIES IN NETHERLANDS NEW GUINEA*

Year	*Number*	*Members*	*Turnover (Fl.)*
1951 (31 Dec.)	9	[1]	[1]
1955 ,,	25	[1]	976,000
1956 ,,	36	6,500	1,137,000
1957 ,,	43	7,300	1,497,000
1958 ,,	52	8,600	1,641,000
1959 ,,	58	10,100	1,575,000
1960 ,,	76	11,500	2,000,000
1961 (30 June)	78[2]	12,000	[1]

[1] Not available. [2] 9 registered societies, 69 unregistered. (A new Co-operative Societies Ordinance is in preparation. When it is enacted most of the societies can be registered.)



Officers attending one of the nine-monthly education courses held to train them in the proper conduct of co-operatives.

accounting, cost price calculation, elementary economics, and the co-operative system.

Forty-eight trainees qualified within three years. The majority are at present operating their own co-operatives, while others have set up small native businesses. The courses, which provide simple commercial training, help greatly to improve the standard of co-operative administration and give trainees a better insight into co-operative and commercial principles.

Loans For Co-operatives Needing Capital

In 1957 the Administration, in order to assist co-operatives which for want of capital were unable to expand satisfactorily, made finance available for loans to enable them to purchase fixed assets to develop their activities. Thus, loans have been granted for such purposes as the construction of a co-operative store, a sorting shed, and the purchase of a small cargo vessel. During the years 1957-1961, sixteen loans were granted to co-operative societies.

Deducting repayments, the outstanding amount of loans to co-operatives as at June 30, 1961, totalled some Fls. 75,000 (£7,500 stg.). At present, Netherlands New Guinea can boast 78 co-operatives with over 12,000 members (see Table I). In 1960 they had a total turnover of Fls. 2 million (£200,000 stg.).

In recent years, besides co-operatives and communal ventures, an increasing number of one-man businesses and small companies have arisen in the villages in the form of little village stores, or of commodity trade or commission agencies acting on behalf of fellow villages.

Special Bureau Set Up

In May, 1960, the Bureau for the Development and Organization of Native Economic Activity was set up. It is attached to the Department of Economic Affairs. This Bureau, which has replaced the former Co-operative Affairs Bureau, supervises and advises the native co-operatives and working communities; stimulates and assists in the development of a native trading class; promotes native industry and handcrafts; promotes native cargo traffic in the coastal areas with the aid of small cargo vessels; and stimulates such activities by granting loans to native industrial and commercial enterprises.

These loans may be intended for the purchase of such requirements as tools and implements, vessels and appliances, the construction and/or extension of industrial and commercial buildings, and, in special cases, for the purchase of raw materials and trading stock.

The existing and future native industrial and commercial businesses will initially have a somewhat shaky basis from a business point of view. Thus, while loans are never granted unless there is a real potential, the risk involved in the granting of them will be greater than, say, under west-European or Australian business conditions. However, this risk will have to be accepted if indigenous economic activity is to become a reality within a reasonable time.

In 1960 loans totalling Fls. 50,000 (£5,000 stg.) were granted to Papuans for twenty-three small businesses. In the first half of 1961 seventeen loans were granted, amounting to Fls. 38,000 (£3,800 stg.).

Of the above loans, totalling forty in all, nineteen were granted to fishermen (mainly for nets and outboard motors), ten to traders, four to transport operators, and two to owners of small industries. Single loans were made to a contractor, a farmer (for the purchase of oxen), and for a chicken farm, a motor drivers' school, and a small restaurant.

Saving, and the formation of capital, are both encouraged by granting loans only on the condition that 25% of the required sum is supplied by the borrower himself, or that he himself has invested an adequate sum in the enterprise. This will encourage proper spending of the funds advanced.

Looking Back . . .

(continued from page 26)

ally in the Pacific during the past three years. They will be eager to renew friendships, and to welcome warmly the new friends who will soon become part of the Conference fellowship.

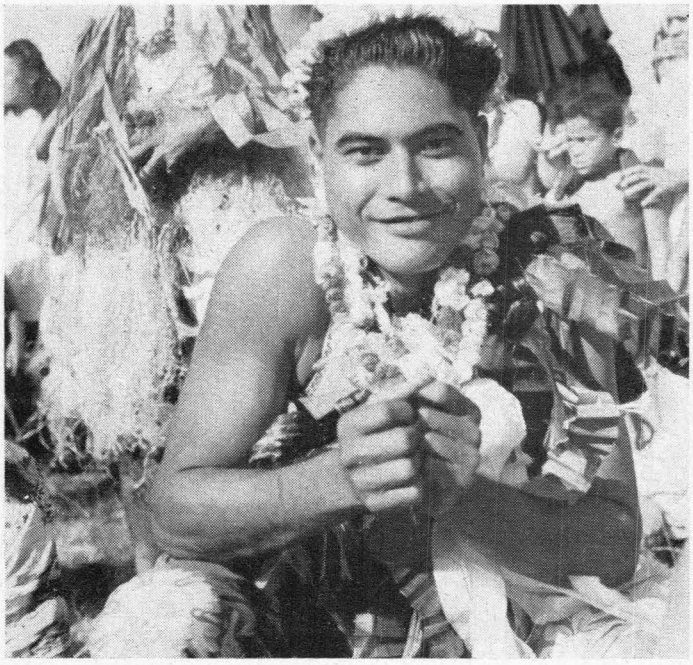
* * *

There will be a change in the relationship of one territory to the Conference, in that the people of Western Samoa have just become self-governing. To that extent there has been a break in the fellowship that the South Pacific Conference engenders. But it will be a matter for congratulation from the Conference delegates to the people of Western Samoa, who have achieved national status in harmony: which is the way delegates from Western Samoa have always worked with their fellow-islanders at the sessions of the South Pacific Conference.

Vessel Check Plan In Beetle Campaign

In Fiji, further measures to try and prevent the rhinoceros beetle from spreading to the main copra-producing islands of the Group have been proposed by the Coconut Pests and Diseases Board. The beetle, a threat to Fiji's £3 million-a-year copra industry, is established on the main islands of Viti Levu and several small islands off the coast.

The Board has proposed the establishment of a series of scheduled ports of departure at which all vessels going to non-infected islands would be inspected before leaving. A special effort would be made to reduce the beetle population in the vicinity of the ports. If the scheme is approved the Board may purchase a patrol boat to check clearance certificates of vessels going to non-infected islands.



Wallisian youth and girls in dancing dress. The Wallisians, who are Polynesians, lead a simple, carefree life, and are a most likeable people.

A NEW FRENCH OVERSEAS TERRITORY . . . . . THE

Wallis & Futuna Islands

Following a referendum held there in December 1959, the Wallis and Futuna Islands, since 1887 a French Protectorate, became a French Overseas Territory in July of last year. The new status of the Group and the plans that have been made for its early development are described in the following article.

By JACQUES HERRY*

ON July 29, 1961, the French Parliament passed a law which made the former Protectorate of the Wallis and Futuna Islands into an Overseas Territory. It is the most remote from the home country, and despite its long-standing links with her, is probably the least known of all French Overseas Territories.

Wallis and Futuna are Polynesian islands lying north-east of the Fiji Group. Wallis—lat. 13°S, long. 176°W—is separated from Futuna (and its much smaller neighbour, Alofi) by some 112 nautical miles.

Futuna and Alofi were discovered by Shouten and Lemaire in 1616. In 1767 Captain Samuel Wallis sighted Uvea (Wallis) but never set foot there. In 1837 Marist missionaries came to the islands, Father Bataillon settling in Wallis, and the Blessed Pierre Chanel in Futuna. The latter was murdered by the natives on April 28, 1841. He was the first Christian martyr in the Pacific, and was canonized on June 13, 1954. Within a few years all the inhabitants of Wallis and Futuna had been converted to Catholicism.

In 1842 the Lavelua (King) of Wallis sought France's protection. However, it was only in 1887, after a treaty had been signed between the French Government and Queen Amelia, that the Protectorate was established.

For a long time it was united, administratively and financially, to New Caledonia. In 1909, an official decree established a separate organization for Wallis and Futuna. The first French Resident, M. Chauvot, arrived in 1887. From 1905 onwards the Resident's duties were frequently assumed by medical officers of the Navy.

The Treaty establishing the Protectorate permitted the French Resident very little freedom of action. The governing of the people remained vested in the hands of the Kings, though the latter had to consult the Resident on all matters pertaining to foreign affairs, and follow his advice.

The French Resident was also Chairman of the "Fono"—the Council of the Wallisian Government—but as he had no means of enforcing his decision he had to rely on the goodwill of the traditional leaders to maintain law and order.

A Pacific Paradise

Remote from the rest of the world, the people of Wallis and Futuna lived in a paradise, under a kind of paternalistic theocracy, until World War II. The six thousand Wallisians and three thousand Futunians concerned produced some copra (1,000 to 1,500 tons) which English firms in Fiji exchanged for cheap goods and a few "luxury" articles.

Shortly after Pearl Harbour, the United States Army installed a naval air station on Wallis Island, and some five thousand American troops were stationed there from 1942 to 1946. They left a network of roads and two airstrips, one of which can take DC-4's.

As in other places, the presence of the Americans created some unrest towards 1946, but things settled down fairly quickly and, with only slight changes, life resumed its former leisurely pattern. Futuna, mountainous and austere, remained untouched.

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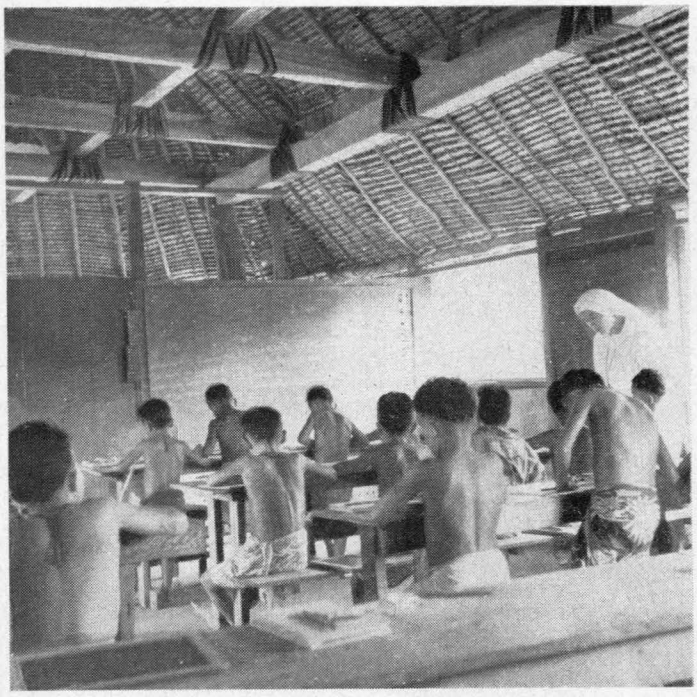
* Chief Administrator for Overseas Territories in charge of New Hebrides and the Wallis and Futuna Group Affairs in the Administration of the French Republic in the Pacific, Nouméa, New Caledonia.



Above: Mission school for boys at Mata-Utu, the main village on Futuna Island. Right: Hihifo Church.

Two Recent Developments

In the last few years, two changes have stirred life in the Group. One is a rather strong current of emigration, first to New Hebridean plantations, later to the mines of New Caledonia; the other, the opening of a monthly air service between Nouméa and Wallis in December 1956.

Ships of the *Société Maritime Calédonienne* (Somacal) call five times a year on subsidized journeys. Aircraft of the Fleet Air Arm, and naval ships, also call occasionally, making in all about twenty visits a year.

Population Pure Polynesian

The population of Wallis and Futuna is Polynesian, without admixture of other races. There are approximately 11,400 inhabitants, divided as follows:

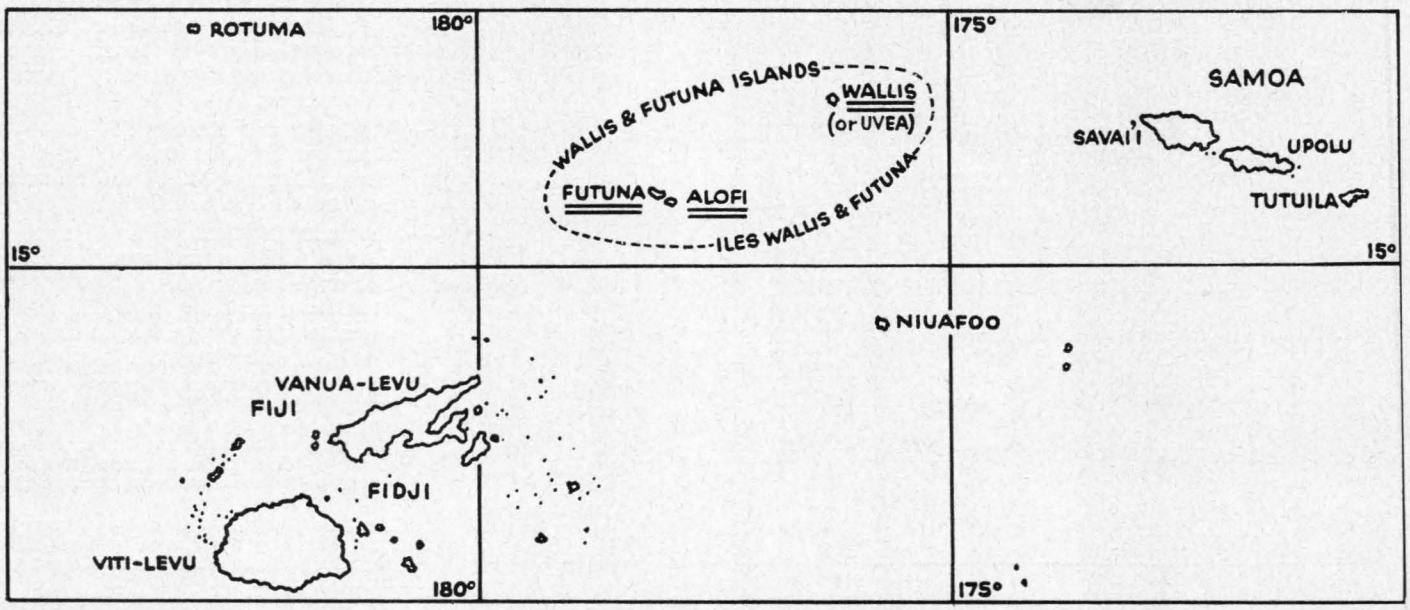
	Wallis And Futuna	New Caledonia	New Hebrides	Total
Wallisians	5,560	1,700	400	7,660
Futunians	3,000	400	340	3,740
	8,560	2,100	740	11,400

Historical evidence shows that the Wallisian population came from Tonga—the Tongan and Wallisian languages are practically identical—and that the Futunians came from Samoa. On the other hand, age-old migrations brought people from Wallis to Uvea Island, in the Loyalty Group near New Caledonia.

Copra Is Main Export

After the rhinoceros beetle was accidentally introduced to Wallis, copra production there fell to only a few tons per annum. Futuna, still free from the parasite, produces approximately 800 tons a year. This production, together with some homecraft items (tapa, mother-of-pearl shells and basketware) form the sole exports from the Group, and earn some £stg.16,080 (4,000,000 frs. CFP) annually.

The purchasing power of the inhabitants derives from those exports, as well as from salaries paid locally by the Administration, the Mission and a few local traders (approximately £stg.12,061 — 3,000,000 frs. CFP), and from postal orders sent home by those working in New Hebridean plantations or New Caledonian mines (another £stg.12,061), i.e.



approximately £stg.4/16/- (1,200 frs. CFP) per inhabitant.

In the last few months, FIDES[1] has financed a campaign to introduce coffee growing on Wallis Island.

On the other hand, salaries paid to the emigrated members of the population total approximately £stg.800,000 (200,000,000 frs. CFP) including family allowances. Futunians and Wallisians who have migrated to the New Hebrides and New Caledonia mix with the local people and adapt themselves very quickly. They enjoy a standard of living and financial advantages which make them the envy of their compatriots at home.

New Status For Group

Perhaps in the hope of improving their livelihood and increasing their resources, and also to strengthen their hundred-year-old association with France, the population of Wallis and Futuna, including the expatriate Wallisians, when consulted by referendum on December 27, 1959, decided that the Group should become part of the French Republic and have the status of "Overseas Territory" (4,307 for, 257 against).

The inhabitants requested that they be allowed to retain the major part of their traditional organization. This involved lengthy and careful consideration, and the law concerned underwent many amendments before it was finally passed in Parliament on July 29, 1961.

The main provisos of this law are:

— the islands become an Overseas Territory with legal status and administrative autonomy, under the authority of a Senior Administrative Officer appointed by the French Council of Ministers;

— certain powers previously vested with the French High Commissioner in the Pacific, particularly in the field of defence, are retained by France;

— there remains a traditional national status which all Wallisians are entitled to preserve unless they expressly renounce it;

— Wallis and Futuna will be represented in Parliament, and voting to elect a Deputy (M.P.) and a Senator will take place shortly;[2]

— the establishment of a Territorial Council of seven members (the Senior Administrative Officer, the President, the three High Chiefs, and three members appointed in consultation with the Territorial Assembly);

[1] FIDES, or *Fonds d'Investissement et de Développement Economique et Social* (Investment Fund for Economic and Social Development), is a French state-sponsored agency established to finance the development of Overseas Territories.

[2] The fact that the Group has become an Overseas Territory automatically gives all its inhabitants the status of French citizens, with full rights as such.

— the establishment of a Territorial Assembly comprising twenty members.

The Senior Administrative Officer, Mr. Jean Perie, took up his post at Mata-Utu on October 7, and immediately went to Futuna to meet the French Delegate and the population.

Main Problems

The problems in the Group are essentially those of all under-developed territories. They are emphasized both by the geographical isolation of the islands, and also because until very recently France rigidly adhered to the conditions laid down under the Protectorate Treaty, which provided more for the maintenance of the traditional customs than for social and economic development as understood and witnessed in the other French territories in the Pacific.

In view of the practically unanimous wish expressed at the December 1959 referendum, it will now be possible to install a more rational system of administration and increase the staff and financial resources both of the State and territorial services.

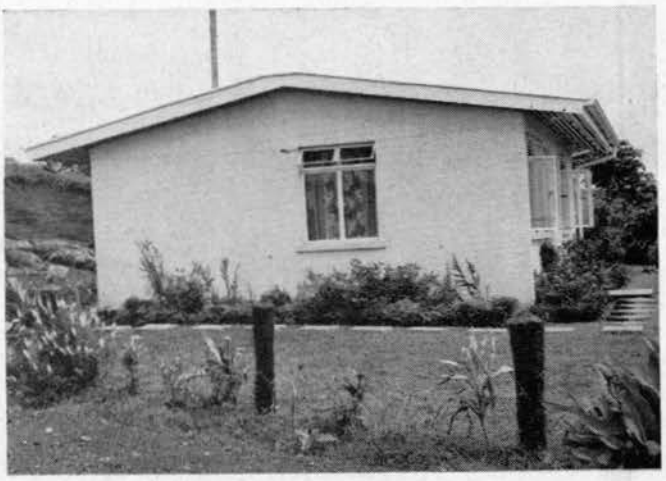
The territory urgently needs basic facilities. It is planned to build this year a deep-water pier at Mata-Utu (financed by FIDES), to improve the airport at Hihifo to enable it to take DC-6's in view of the opening of the TAI "Coral Route", and to set up a large meteorological station at Kilu (Wallis).

Finally, it will be necessary to encourage the local economy, to re-start the export of copra, to launch that of coffee in a few years' time, and also to raise the people's standard of living in order to curtail the migration flow to the New Hebrides and New Caledonia which is draining the islands of their more active inhabitants.

At the same time the population, which is still extremely primitive and very much attached to its ancestral customs, needs to be taught to assume civic responsibilities. New institutions must be created, and leaders found and trained to assume responsibility for making Wallis and Futuna into a modern and prosperous country.

Schools Broadcast Service From ZCO Tonga

Broadcasting station ZCO, Nuku'alofa, operated by the Tongan Broadcasting Commission, will shortly institute a schools broadcast service. Early last year an experienced Tongan school teacher, Masiu Moala, was sent to New Zealand for training in this field, and recently spent several months in Fiji and Western Samoa studying the established services there before returning to Tonga to set up a similar service.



Front and side views of one of the original pilot project houses at Raiwaqa, Suva, first occupied when the Estate was opened in November 1959. Tenants of these cottages have shown a keen interest in developing their gardens.

More Low-Cost Houses For Fiji

Steady progress is being made by the Fiji Housing Authority in its task of providing low-cost housing for low-income workers. Latest developments are reviewed below by . . .

H. H. MADAMS*

AT the Raiwaqa Housing Estate in Suva, the Fiji Housing Authority's first twenty-six tenants have completed their two-year "probationary" period. They have been offered, and have accepted, the opportunity to purchase their homes. Payments, less interest, previously made by them as rent will now be credited to their purchase accounts, so that, in effect, purchase will have commenced as from the date of first occupancy. Ownership of these houses will now cost occupiers £7/5/- per month over the next eighteen years.

Under the Housing Authority's Home Purchase Scheme, if a tenant proves unsatisfactory during the "probationary" period, he can be required to quit and in this case rental payments are forfeited.

The Raiwaqa Housing Estate was opened by His Excellency the Governor of Fiji, Sir Kenneth Maddocks, in November 1959. Since that date, although handicapped by limited funds, the Fiji Housing Authority has made steady if modest progress.

The first two building contracts at Raiwaqa consisted of twenty-eight detached concrete cottages and fourteen semi-detached two-storey houses. These were designed for Suva wage earners in the £6 to £12 per week wage bracket.

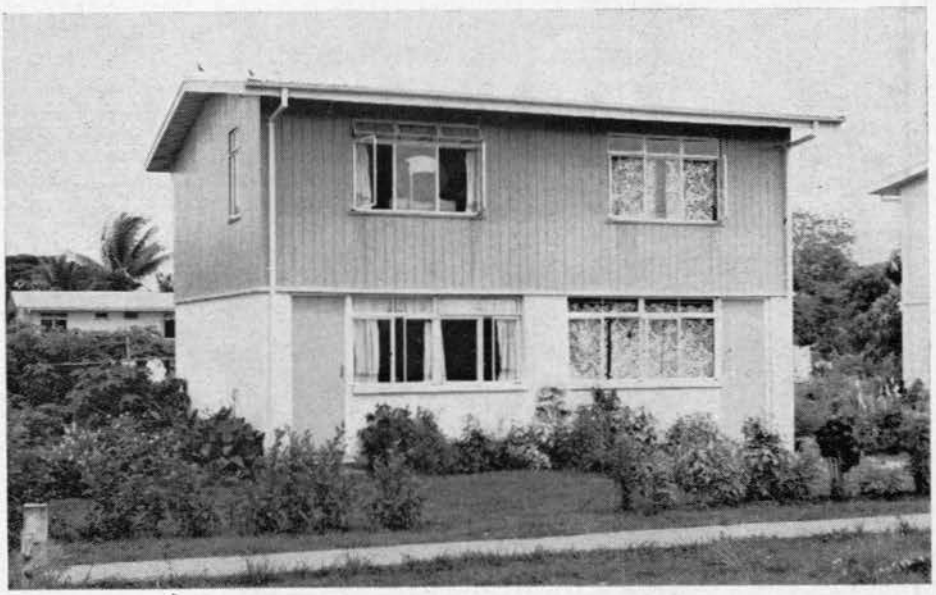
These forty-two houses were completed and let early in 1960, and as both types appeared popular the Authority let contracts for a further twenty-four detached and twelve semi-detached houses.

These dwellings are respectively 412 sq. ft. and 573 sq. ft. in floor area. Each house type has two bedrooms and all necessary facilities, the two-storey house having a larger living room which can also be used for sleeping purposes. The average lot size is 3548 sq. ft.

House For £6 Per Week Wage Earner

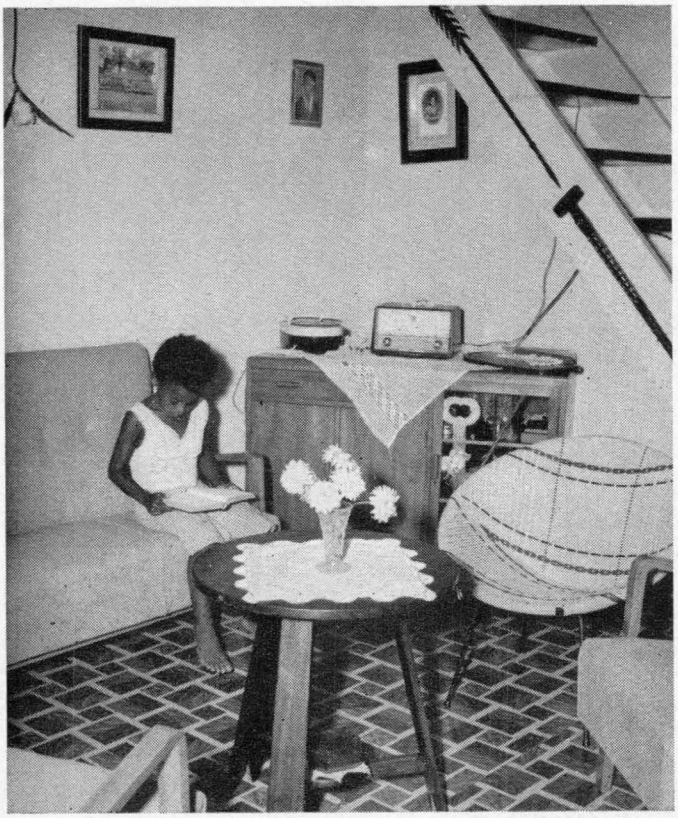
The next development stage of the Raiwaqa Housing Estate was aimed at producing a house for the £6 per week wage earner. In this building, which was prefabricated from treated local timber, all strictly unnecessary features (such as, for example, roof overhang) were eliminated. While this house type at first appeared to afford the best possibility of a really low-cost dwelling, serious difficulties were experienced by the contractor in securing adequate supplies of good-quality local timber. Consequently there was considerable delay in the completion of the nine houses in this contract.

In view of this it is unlikely that the Housing Authority will attempt to build more houses exclusively from local timber until supplies are more reliable and a timber grading system is introduced. It is anticipated that the supply position in the industry will improve when the newly-formed Pacific Lumber Company, which



One of thirty-eight half-timbered houses at the Waiyavi Estate, Lautoka. Concrete footpaths provide access to all houses off the main road.

* Executive Secretary, Housing Authority, and Housing Manager, Fiji Development Company Limited.



Interior and exterior views of one of the semi-detached two-storey houses on a newly-constructed street of the Raiwaqa Estate. Occupiers have taken a great interest in making the interiors as well as the gardens of their homes attractive.

is establishing a mill in the Nausori Highlands north of Nadi, Viti Levu, gets into active production later this year. The Pacific Lumber Company is associated with the Fiji Development Company Limited, who are managers for the Fiji Housing Authority.

Following the successful construction of a small estate office by the Ctesiphon arch method, the Authority decided to erect ten houses on this principle at the Raiwaqa housing estate.[1] The ten houses are grouped round a central open space, and each is self-contained with kitchen, shower, w.c. and electricity supply. These buildings were constructed by direct labour under the supervision of the Authority's Clerk of Works. A number of difficulties were encountered from the outset, including labour problems and the shortage of treated local timber.

The cost of construction of these houses, including site preparation, sanitation, electricity installation, concrete footpaths, etc., was 30/1d. per sq. ft. The cost of the bare building without these extras was 19/2d. per sq. ft. Although it is considered that in their basic form buildings of this nature may be suitable for rural areas, and that costs can be still further reduced, experience has shown that it is essential to have a trained and properly-supervised team to construct them if low cost is the primary objective.

[1] See article *Unique Low-Cost House Being Tested In Fiji* on page 40 of the *South Pacific Bulletin* for October 1961.

The topography of the land at the Authority's Suva housing estate is very irregular. When the first six stages of development had been constructed it became necessary to build additional roading before further houses could be built. The extension of the existing road and the construction of part of a new road amounted, in all, to 1800 lineal feet of new roading. This work entailed considerable capital outlay and, since all estate development costs have to be charged to house purchasers, has resulted in rental purchase levels being higher than would otherwise have been the case.

The Housing Authority hopes eventually to persuade local authorities to assist in low-cost housing estate developments in their respective areas. A co-operative effort in which the authorities provided equipment and labour for such work as site clearing, levelling, and road construction would result in a marked reduction in rental/purchase levels. The objection to this is that it amounts in some measure to subsidization. It is doubtful, however, whether it will be possible to cater for the lowest income worker unless some such form of subsidy is provided.

Costs Lowered By Reducing Standards

Under the Fiji Housing Ordinance, local authorities are empowered to approve building plans and specifications to reduced standards in respect of housing schemes sponsored by the Housing Authority. The object of this provision is to enable the maximum reduction in building costs consistent with health and safety.

Modifications of regulation requirements have been embodied in all houses constructed by the Authority. These include:

(i) ceiling heights (reduced from 8 ft. to 7 ft. 3 inches);

(ii) wall plates and studs for internal non weight-bearing walls (reduced from 4″ x 2″ to 3″ x 2″);

(iii) reduction of the minimum size of some rooms;

(iv) the provision of footpath instead of standard road access to houses up to a maximum distance of 300 ft. from a road;

(v) reduction of building lot sizes. (The Regulation requirement in the Suva area, when the Authority began operations in 1958, was 6600 sq. ft. minimum lot size. Subsequently the City Council agreed to a lot size of approximately 3000 sq. ft. However, with the terrace houses now being built, lot sizes are approximately 700 sq. ft. This reduction has meant a more economic utilization of land.)

Modifications of the building regulations have, of course, enabled reductions in house costs, which in turn have been

reflected in reduced rentals and purchase repayments. Recent surveys carried out by the Housing Authority and the Suva City Council revealed that, in the centre of the City, the average rental of accommodation for workers is £4/10/- per month for a single room and £8 per month for two rooms. In many cases washing, cooking and w.c. accommodation are shared with other families, and buildings are overcrowded and in a state of disrepair.

When these figures are compared with purchase repayments for its houses, it is clear that the Authority's work has had a beneficial effect on the domestic economy of the 220 families for whom new housing has been provided since 1959. Purchase repayments, including fire, hurricane and earthquake insurance, over twenty years on the Authority's houses range from £9/15/- per month for a house of 573 sq. ft. to £6/-/- per month for one of 386 sq. ft.

On the basis that an average family can afford to pay not more than 25% of the breadwinner's wage in rent or house purchase, the lowest wage group so far provided for by the Authority is approximately the £6 per week class. This is where the real problem begins, for the great majority of the families living in unfit accommodation in Suva fall into the £3 to £6 per week group. No doubt this is also true of other industrialized areas in Fiji. An extension of the problem lies in the fact that almost invariably the lowest wage earner has the largest family.

Above: Terrace of five cottages based on the original pilot project design. Terrace construction has reduced the number of cross walls, length of drainage and other services.

Right: View of kitchen of one of the single-storey terrace houses showing sink unit and concrete wall slab designed to take a table model stove.

Terraced Houses Reduce Costs

The Authority continues to explore every avenue which may result in cheaper housing. A not inconsiderable saving has resulted from terracing the construction of houses. Both at Suva, and at a new housing estate at Waiyavi, Lautoka, the original detached concrete cottage is now being built as a standard terrace house.

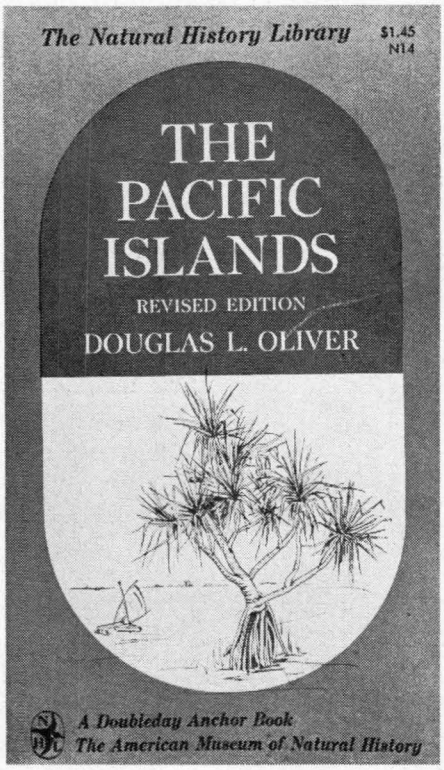
This type of construction reduces the number of cross walls, the lengths of water, electricity and drainage services, guttering and downpipes, and simplifies roof construction. It is also economical in land use, since lot sizes can be reduced to the minimum.

With the small garden plots, of course, more attention has to be given to the provision of public open space. Less desirable building land can be used for this purpose.

A proposal which has not so far met with the unqualified approval of local

(continued on page 63)

Block of six two-storey terrace houses under construction at the Raiwaqa Estate. Thirty of these houses are being built in this contract. The pilot project and semi-detached houses are seen in the background. Access to all these dwellings is by concrete footpaths.



New Paperback Edition Of . . .

The Pacific Islands

First published in 1951 and recently revised and re-issued as a paperback, Professor Douglas L. Oliver's book THE PACIFIC ISLANDS *is a highly-successful attempt to outline in one volume the history and geography of the vast and complex Pacific region. It is reviewed below by . . .*

SYLVIA MASTERMAN*

ALL who are interested in the South Pacific should welcome the new paper-back edition of Professor Douglas Oliver's *The Pacific Islands*.[1] This book, first published in 1951, has been revised and expanded in the light of new knowledge and new economic and political developments in the last ten years.

Any book attempting to cover the whole vast field of time and space that makes up Pacific history must seem formidable. But, however formidable the task may have seemed to Professor Oliver as he picked up his pen at the outset, he has succeeded in reducing the vast amount of information, facts and controversy to a book of manageable proportions, clearly set out and forcibly written.

It is immensely readable. In his bibliographical notes Professor Oliver says: "After some twenty-five years of preoccupation with Oceania—one-third spent in the area and the rest reading about it—I have accumulated innumerable facts which I cannot pin down in neat little footnoes". It is partly this lack of scholar's caution that helps to make this book so readable. It is not scholarly. It is not cautious. An eminent historian once remarked of H. G. Wells' *Outline of History*—"I find the parts which relate to my own field of studies irritatingly incorrect—but all the parts I know little about are quite fascinating".

Professor Oliver's book gives something of the same impression. On page 413 his paragraph relating to Samoan independence ". . . during 1960 they organized their own government, began writing their own constitution, and cast off all but the slenderest ties with New Zealand", is manifestly incorrect. There are numbers of inexactitudes which are irritating. He speaks of Essex Hall instead of Westminster Hall. He gives I. G. L. Sullivan instead of I. L. G. Sutherland, and so on. One would like to verify some of his controversial statements. But nevertheless, he has succeeded in his basic task of trying to cover the whole history of the whole area and to assess the effect on the indigenous people of the penetration of the European races in the area, with a few comments—too few—on the last ten years and what prospects the future might offer for Pacific peoples.

The first section of the book covers the geographic and ethnological side of Pacific history. As an anthropologist Professor Oliver is able to give an excellent and authoritative account of the various peoples of the Pacific area and theories of how they arrived there. Much of this is so good that it could well occupy a larger proportion of the book. However, with the rapid advances that are being made in extending our knowledge of Austronesian and Papuan languages, and with the archaeological finds of the last ten years, it is probably wiser to keep to the general outlines which are after all the structural bones on which the rest of the book is built.

Professor Oliver then goes on to describe the 'Aliens'—as he calls the European intruders of the last three hundred years—the explorers, the whalers, traders and missionaries, the planters, blackbirders and merchants, the miners and administrators.

He then, in a section headed METAMORPHOSIS, proceeds to assess the damage—at least that is the impression he creates. Areas with similar problems are grouped together under headings such as the Dispossessed (Australia and New Zealand), Salvation (Tonga), Coconut Civilisation—in the main all those areas dependent on copra—Sugar Revolution, Mining, and so on. Each study is a vigorous commentary on the hundred or so years that have passed since the coming of the European, a brief historical outline and an analysis of the effect on the natives.

It is not a very nice story, and it is not made any more appetising in the emotive and ruthless phrases of the book. This is probably inevitable. As an anthropologist Professor Oliver mourns the passing of, or the changing of, these simple 'first class' natives, as he calls them. As a humanitarian he hates to tell of murder of innocent blacks, of the greed of traders, of whole tribes dispossessed of land by planters, and of the decimation by disease, by blackbirding, by dispossession of land, by the moral decline with the break up of the old tribal system. The facts are something everyone should know, if only because a great deal of the harm that was done one hundred and more years ago was done unwittingly.

The early missionaries showed immense courage and resource and endurance in the belief that they were messengers of peace and hope to the peoples they visited. It was probably thanks to them that any of these people survived at all. That one effect of their work was to break up the old tight tribal units and to lead partly to the decline of the ancient whole tribe was something no one in 1797 could have foreseen. Evil is not usually done deliberately on a large scale. It happens insidiously. It certainly was no part of British Government policy, for instance, to abolish or even dispossess the Maori. Quite the reverse; the Government in Whitehall was most anxious to protect Maoris from the possible evil effect of white settlement. But none the less it almost happened and by 1880 the numbers of Maoris were reduced to a fraction of their original number.

This is the story almost everywhere, but it is historically incorrect to imply that it has never happened before. It has happened time and time again through the millennia of man's history and

[1] Douglas L. Oliver: *The Pacific Islands*. Revised edition, 1961. Published in co-operation with the American Museum of Natural History. New York, Doubleday and Company, Inc.

* Author of *The Origins of International Rivalry in Samoa, 1845-1884*. London, Geo. Allen and Unwin. *An Outline of Samoan History*. Education Department, Western Samoa, 1958.

indeed the only thing that is unique is that the intruders are so deeply and sorrowfully aware of the worse aspects of their intrusion. When in all accounts of history do we get that? Perhaps for a passing moment in Tacitus when he quotes the speech to his troops of the British Caledonian general Galgarus before his last battle with the mighty Roman forces. Galgarus ends with the famous taunt flung in the face of the Roman system which brought peace, order and civilisation at the price of barbarian freedom: "They create desolation and they call it peace".

The fourth section deals with the War which in 1951 loomed still large on the horizon. Now that the jungle has closed over asphalt paths, and only mouldering iron and disused wharves in unlikely places remain as reminders of that cataclysm, it does not seem to be quite such an enormous event in Pacific history as might have seemed in 1951. On the other hand, the fifteen years since the War are surely of sufficient importance to warrant more than a brief twenty pages. Almost in every island the populations, which seemed doomed fifty years ago, have increased to such an extent that the problem of the future will be the production of food. Not only have islanders increased, but the interest in their future welfare has become a matter of major importance to all the governments concerned. Professor Oliver points out that some of those who look at the islands look more in terms of orderly groves of coconuts, mines, busy highways and wharves, than in terms of strategic value of the islands to the administering government. Where, he asks, do natives fit into these plans of colonisation?

At this point any serious study of the South Pacific shou.d attempt to examine and criticise the work, past and planned for the future, of the South Pacific Commission. The Commission is young and has inevitably had to feel its way cautiously over the first years of its life. But surely, in the plans and projects for health, education, literacy, fishing techniques, boatbuilding courses, women's interests seminars, health education programmes, urbanization seminars, co-operatives, plant introduction, fish introduction, rhinoceros beetle research, surely in all this and more there would be material to praise or blame, or at least to evaluate? But Professor Oliver confines himself to two sentences: "One factor which must be considered when predicting the future of the South Pacific islands is the potential influence of the South Pacific Commission. That organization *could* (my italics) become a powerful agency for unifying the dependencies as well as for solving some of the economic, social and health problems".

The author then makes some rather dreary predictions on the basis of the increasing populations and the native ability to adjust or not to Western culture, and comes to the not very imaginative final conclusion that " . . . in any event, native cultures will not remain unchanged, nor will they revert to their pre-European patterns".

For any future of federation or independence he has very little hope. "The colonial powers may permit the island dependencies to evolve into federated semi-autonomous states. But, even in that event, the South Pacific islands will inevitably be drawn closer under the economic and cultural hegemony of Australia and New Zealand".

In an epilogue, presumably to allay the fears of his American public, Professor Oliver discusses the danger of the South Pacific coming under communist influence, and he feels able to reassure his readers that there is little danger of that.

New Printing Factory Opened In Hollandia

Papuans form eighty per cent of the staff employed in the new Government printing factory recently opened in Hollandia. The plant comprises the printing works, publishing section, general office, and air-conditioned store for paper, inks, and other printing materials.

Health Education Course In Western Samoa

From January 15-26 last, twenty-three district nurses attended a course in health education in Apia. This account of the Course was prepared by the SPC health education officer who organized and conducted it.

By LILIANE GEISSELER

With the aid of a flannelgraph, District Nurse Tafaoga puts into practice what she learned at the Course, for the benefit of the Women's Committee of Sapapali'i village, Savai'i Island.

THE songs and dances of the Independence celebrations in Western Samoa had hardly ceased when twenty-three nurses, representing all the districts of Upolu, Savai'i and Manono Islands, came to Apia to attend a health education course. Held from January 15 to 26 at Leififfi School, the Course was attended by nurses with a wide range of training and experience. Some had been working in one district for more than thirty years, others had left the hospital fairly recently.

The work of a district nurse in Western Samoa offers ideal opportunities for health education. Depending on its size, a district may include up to seventeen women's committees and seven schools scattered over a large area, which the nurse covers on foot or cycle. Her tasks include meeting the women's committees which are established in practically every village, visiting the other inhabitants of villages, inspecting houses, and examining school children. As well, the district nurse may also help the Samoan medical practitioner and other members of the staff at the district hospital.

Under the direction of the wives of the chiefs and orators, the women's committees usually play an important role in the community. Their members share in many activities such as fund raising for a desired improvement for the village. They take turns in looking after the small local hospital or the committee's *fale*—where patients may be brought—and in helping with normal childbirth deliveries. They also help each other to improve their skills in housekeeping, child care and weaving.

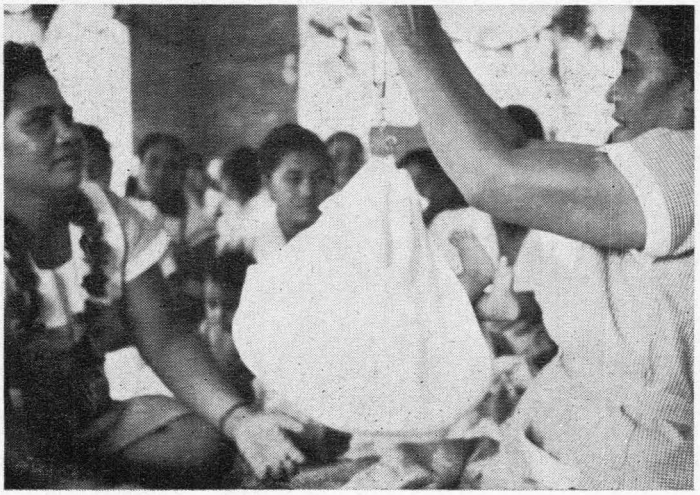
When the district nurse meets with the committee she examines the pre-school children, gives guidance to their mothers, and treats minor ailments. She gives a short talk on a topic of general interest, and there is then a discussion to set the tasks for the next meeting. For example, a member might have to produce, for the improvement of her home, five new mats or six new pillow cases. She will bring these to the meeting, and they will be examined in front of all members.

The Course Curriculum

The Course mainly comprised lectures, demonstrations, workshop activities (including instruction in making visual aids), group discussions, role playing, and presentation of filmstrips. The nurses themselves described what was done, what they had learned, and how they planned to apply their new knowledge, when at the end of the Course they handed in written answers to these questions. The substance of their replies is given in the following:

WHAT WE DID DURING THE COURSE: We listened to lectures given by doctors,

Practical demonstrations of infant care were a feature of the Course. Right: Weighing a baby with a spring balance.



Role playing. A district nurse demonstrates how she would go about convincing a non-member of a Women's Committee to join.

Right: At the end of a district nurse's visit to a women's committee, members prepare for an inspection of pillows, made as a task set at the preceding meeting.

Samoan medical practitioners, sisters, and the health inspector, as well as by the South Pacific Commission's health education officer. Our supervisor—Staff Nurse Momoi Kuresa—assisted and sometimes translated into Samoan. We refreshed and increased our knowledge of the subjects most important in our work —child care and obstetrics, sanitation, intestinal parasites, eye and skin diseases, tuberculosis, leprosy and the control of communicable diseases. We learned something new in public health and health education. We also went to the hospital to watch demonstrations of infant feeding, deliveries and ante-natal supervision. During the workshop Course we made our own visual aids such as flannelgraphs, dividing the subjects so that we could lend them to each other, from one district to another. We divided into small groups to discuss some of our problems, and even did some role playing—acting out various situations to try and understand better how people feel and react.

WHAT WE LEARNED DURING THE COURSE: As far as health education is concerned, we learned how to help people improve their health practices, first by explaining to them why it is necessary to adopt improved ways to keep themselves healthy, and then by persuading them that good health is really worth having. To do this, we must know well the people with whom we work, what they believe, what they like and dislike, and what their problems are. For instance, we discussed the reasons why some women do not join the women's committees, and got new ideas on how we could attract more members by doing interesting things, and by encouraging the good ones, instead of giving too many fines to those who have not fulfilled their assignments.

WHAT WE WILL DO: When we go back to our districts, always before giving a talk we will first of all make sure we know our subject thoroughly. We will use visual aids to make our talks clearer and more interesting. We will visit women who cannot—or do not—want to join the women's committees, talk to them, and try to help them to come. When we want to start a special campaign like getting rid of mosquitoes, we shall try to talk everyone in the village—not only the *matai,* orators, and the pastor—but also the teachers, untitled members, women, and young people, so that they will all understand and co-operate. When people make personal efforts to maintain their good health and develop a sense of their own responsibility, we believe that there will be less sickness and fewer deaths in Western Samoa.

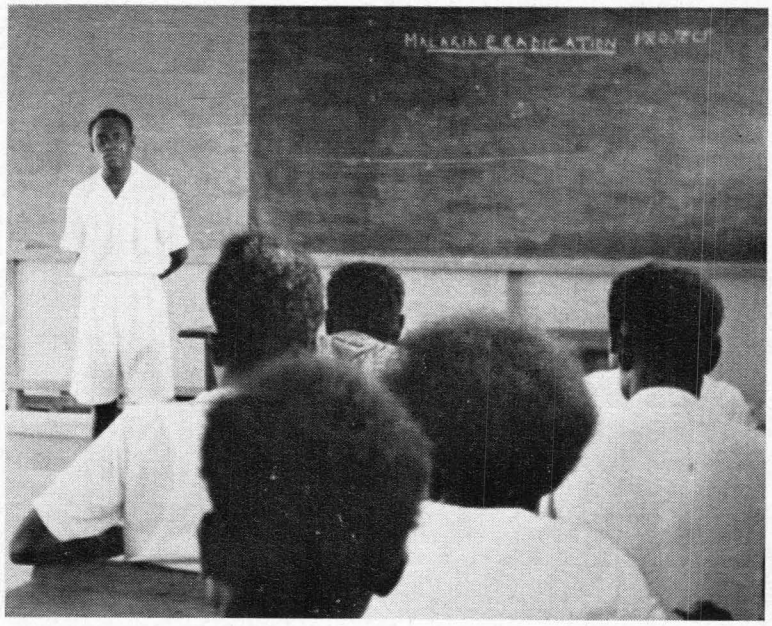
At the end of the Course. Participants photographed with the Minister of Health, the Hon. Tufuga Fatu.

FAO-SPC Co-operative Training Centre In Fiji

Twenty-three experienced co-operative officers from the British Solomon Islands, Fiji, Gilbert and Ellice Islands, Netherlands New Guinea, Papua and New Guinea, and the United States Trust Territory of the Pacific Islands, will attend a regional co-operative training centre to be held at the Nasinu Teachers' Training College, near Suva, from April 30 to June 22. The Centre is being held under the joint sponsorship of the Food and Agriculture Organization of the United Nations, and the South Pacific Commission.

Co-operative principles, accounting procedures, and co-operative law are the approved subjects. The main purpose of the Centre is to provide, at a fairly advanced level, information on the principles and operation of co-operatives which will better qualify those taking part for their work of guiding co-operative organizations in their own territories.

Mr. F. E. M. Warner, Registrar of Co-operatives, Fiji, will be the honorary director of the Centre. He will be assisted by two associate directors, Mr. R. C. Gates, representing FAO, and Mr. R. H. Boyan, SPC co-operatives specialist.



Assistant Medical Officer Gideon Zoloveke lecturing during the Course.

Malaria Eradication In The Solomons

Last January, a four-day health education course in malaria eradication principles was conducted for twenty teachers of Guadalcanal Island, in the Solomons. It was held as a preliminary to the launching there in March of a pilot project in malaria eradication. This account of the official opening of the Course was contributed by the health education officer working on the project . . .

GIDEON ZOLOVEKE

THE first health education course in malaria eradication principles for teachers in Guadalcanal was held at the Seventh Day Adventist School at Betikama in the second week of January. Twenty teachers attended the Course, which lasted for four days.

Present at the official opening were the Chief Medical Officer, Dr. J. D. Macgregor, the leader of the malaria eradication pilot project, Dr. W. Alves of the World Health Organization, the South Pacific Commission's health education officer, Miss L. J. Martin, and the headmaster of the Betikama School, Mr. Silva.

In his opening speech, the Chief Medical Officer briefly outlined the responsibility which all Solomon Islands people have to share in eradicating malaria. He also spoke of the responsibilities of the Government, and of the assistance received from United Nations Agencies and the South Pacific Commission.

The leader of the malaria eradication pilot project, Dr. Alves, emphasized the need for the assistance of the local inhabitants in carrying out the project, and he described the part which different church denominations can play to help the campaign. In giving some idea of progress made to date by the World Health Organization with the malaria eradication pilot project in the Solomons, Dr. Alves emphasized that neither his presence nor that of staff members of other international bodies should make the people think that this project was not their own.

Miss L. J. Martin, SPC health education officer, stressed the importance of health education in the malaria eradication project. She recalled the early introduction of information about malaria in the general health education courses held in the Protectorate in 1960, which some of the Seventh Day Adventist teachers had also attended. She hoped that the same enthusiasm would be maintained by the teachers in the audience, in this work of health education in malaria eradication.

Course Objectives

The Course was concerned with the problems of the malaria eradication pilot project. It explained the procedure to be adopted for malaria eradication, and described how it would be carried out.

The Course explained the differences between malaria eradication and control; malaria fever and how to recognize it; the malaria mosquito (which is different from the non-malaria mosquito); how malaria is spread or transmitted; geographical reconnaissance; the spraying

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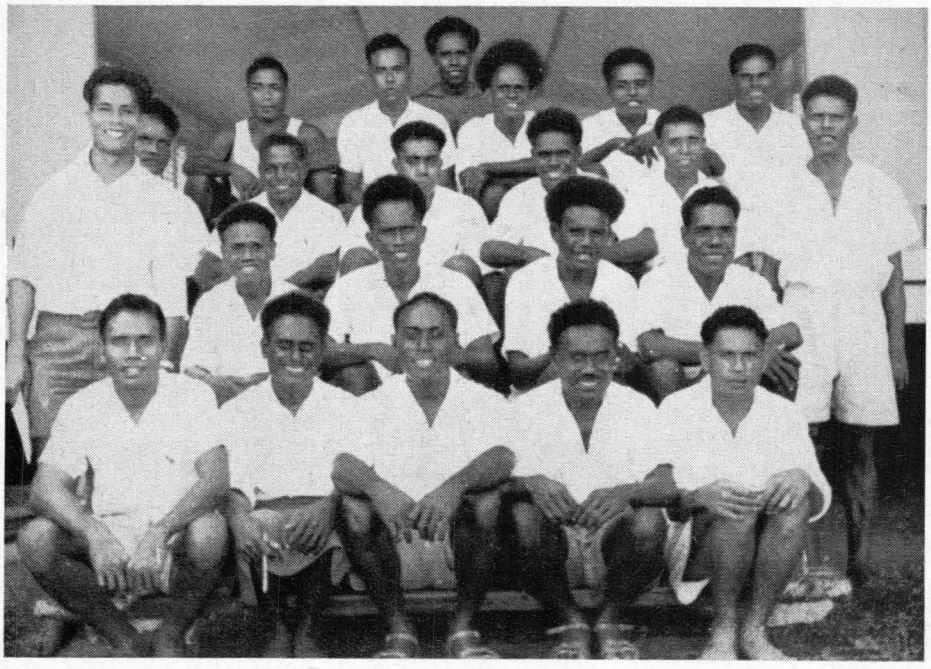


The teachers who attended the Course, with A.M.O. Zoloveke (centre of front row).

Left: Agathis forest two thousand feet above sea level, in the Vogelkop area of Netherlands New Guinea.

Right: Agathis seedling, one year old. After three years, annual rate of growth is around three feet.

Valuable Resin From New Guinea Conifer

Extensive stands of the conifer Agathis labillardieri *are found in several parts of Netherlands New Guinea. When tapped, this tree yields a valuable resin known as copal, and, guided by the Forestry Service, Papuan forest workers are developing a useful source of income by gathering it for export.**

By F. W. RAPPARD

IN several parts of Netherlands New Guinea is found the conifer *Agathis labillardieri,* so called by the botanist Warburg in memory of the French doctor and explorer of the last century, de la Billardière. In Netherlands New Guinea the tree is commonly called Agathis, or by the Malayan name of "damar poetih;" while in Australia it is called the New Guinea kauri.

The *Agathis* is to be found in many types of environment—alongside rivers, in the swamps of the south coast, in valleys and on mountains. Some of these trees reach a height of more than ninety feet, the trunk being bare of branches except at the very top. The Forestry Service has established several plantations of this conifer, which is useful for both resin and timber.

Once the seedlings have taken, growth is very rapid. One of the handicaps in establishing *Agathis* plantations, however, is the lack of propagation material such as ripe cones and seeds. It is difficult to collect the seed-cones from the tops of tall trees dispersed haphazardly in the forests. Worse than this, however, is the large-scale destruction of the young cones and male inflorescences by white cockatoos (*Cacatua galerita triton* Temminck).

From the few cones which ripen, very few seeds eventually germinate. Moreover, the seedlings have a difficult struggle for existence among other trees, undergrowth, lianas, etc. To combat this the Forestry Service digs an isolation ditch about eighteen inches deep around the mother tree, from forty to fifty feet distant from it. Within this circle the ground is cleared of all growth, and the top soil is dug over to half a spade depth to create better germinating conditions.

Among the requirements for the healthy growth of *Agathis* seedlings are shade and the presence of mycorrhiza, or symbiotic fungus, in the first years. This fungus lives in symbiosis on the young hair-roots, and so it is therefore necessary to plant the seedlings in forest earth infested with it. Shade is necessary until the young trees have reached a height of eighteen feet.

The first *Agathis* plantations in Netherlands New Guinea were established with seedlings taken from around adult trees dispersed over great distances. Experiments in vegetative propagation have been unsuccessful to date, but the prospects seem hopeful.

An encouraging sign today is that the Papuans, during their resin-gathering trips, also collect the seedlings around the trees, plant them around their villages, and tend them carefully. In the future they will provide a good source of income for the villagers.

It would be economically worth while to establish large-scale *Agathis* plantations, because for special paints and certain other purposes the synthetic resins cannot replace the natural product from these trees. Also, production costs of natural resin in New Guinea are much lower than those of the synthetics, and will become lower still if soundly-managed plantations are established.

Another favourable factor is labour. Only a few forest workers are needed to collect the resin from quite a large area, and most Papuans like this kind of work. At present the Forestry Service is training native foresters, who in turn instruct their fellows in the best method of tapping the resin, tending seedlings, etc.

However, as long as the problem exists of obtaining *Agathis* seedlings in sufficient quantities, the native plantations will remain the most important source of resin.

Method Of Tapping

The method of tapping now in use after years of experience is adapted to the characteristics of this conifer and to the difficult conditions under which the tappers work.

Most of the resin veins in the bark of the *Agathis* conifer are vertical, and

* This article, which originally appeared in *Nederlands Nieuw-Guinea,* is reproduced here by special permission of the publishers, the National New Guinea Committee, The Hague, Holland.

Above: Close-up of Agathis tree foliage. Note seed cones.

Left: These remarkable callus growths have developed following years of tapping using the Biak method.

so a slant incision in the bark is necessary to open them to a maximum and to promote the resin flow. However, each incision should not cover too large a surface, in order to facilitate bark regeneration and to lessen the risk of insects and fungi entering the trunk. Small tap wounds also do not obstruct sap circulation between roots and crown of the tree.

The best tapping method is as follows: Using a sharp, pointed machete, the tapper makes V-shaped incisions no more than 6″ wide around the trunk at regular intervals. The tapped area should not exceed one-third of the trunk surface. In order to facilitate bark regeneration, it is also important not to damage the cambium during the incision.

Once every two to four weeks the tapper collects the resin, and at the same time he cuts two to three millimeters of bark away from the upper end of the V-shaped incision in order to re-open the resin veins. The best time for tapping is in daylight, as during darkness the veins tend to remain open and the resin does not thicken.

After years of tapping, long perpendicular scar strips are produced around the trunk at regular intervals. If two-thirds of the trunk's surface still remains in good condition for sap circulation, there is no danger at all for the tree. After several years a new tapping surface will be too high for the tapper, and new incisions can therefore be made between the old tap strips, as the bark of these will have grown again in the meantime.

Two Kinds Of Resin

There are two kinds of resin, the medium-soft, called "melengket," and the syrupy, called "papeda." A skilled forest worker, after examining a few drops of resin, will know which kind the tree produces. The syrupy resin is very difficult to clean and therefore has little market value. The flow of the medium-soft resin is more rapid, and in consequence the tappers make a more obtuse-angled incision.

Until now it has been impossible to differentiate botanically between the *Agathis* producing the "melengket" resin and that producing the "papeda," although there are important chemical differences between the two resins. Trees producing either "melengket" or "papeda" are frequently found in close proximity.

If it were possible to construct cheap, light and easily-transportable cups to catch the resin, and at the same time avoid the collection of rainwater, the production of good resin would increase from 40 to 50 per cent. (Rainwater has a detrimental effect on freshly-tapped resin.)

The Biak Method Of Tapping

Another method of tapping is called the Biak method, and this is still used on Biak (Bosnik area), and in the western part of Netherlands New Guinea.

The Biak method consists of chopping haphazardly over the trunk's surface as high as possible with a machete, which is given a quarter turn at the moment of impact. This method of tapping is much inferior to that described first. After years of using the Biak method, large calluses appear all over the trunk, and these provide easy access for beetles, etc.

The Forestry Service now widely advocates the first method (called the Lundquist method) but several pyschological factors hinder its introduction in those areas where the Biak method is used.

To illustrate the advantages of the Lundquist method, forestry workers demonstrated both methods on the same trees. This double tapping proved so severe that some trees died. In the eyes of the Papuans the Lundquist method was to blame, but it is, nevertheless, rapidly gaining in popularity.

Above: The first resin begins to flow.

Top right: Because of excessive removal of bark, these trees are doomed to die.

Right: A Papuan forester trained at Kota Nica Agricultural Station demonstrates the correct method of tapping.

Malaria Eradication In The Solomons

(continued from page 60)

of houses; malaria drugs; the people's task during the spraying and afterwards; and health education generally.

It was gratifying to find during group discussions and general meetings that teachers had many pertinent questions about the malaria eradication work. We were most grateful for their contributions towards exploring some of the problems concerning the cultural epidemiology of malaria, attitudes, beliefs, customs, etc., of the people. After careful selection of these questions in their appropriate categories a special booklet has been developed and is being printed for distribution to all malaria workers.

The attitudes of the teachers during the entire Course were indeed encouraging, and their attendances were well maintained. They have now dispersed to different parts of Guadalcanal to pass on the knowledge they have gained to the people, so that they will understand what is being done and help to make the project a success.

More Low-Cost Houses For Fiji

(continued from page 55)

authorities is the simplification, and therefore the cost-lowering of building construction by the provision of communal washing and w.c. facilities. Local authorities, with vivid memories of the old-time "labour lines", view such a suggestion with apprehension. There is no doubt that in a racially-mixed community such a scheme poses more than the usual problems.

Nevertheless, the Housing Authority considers that a carefully laid-out scheme in which blocks of terraced houses are grouped in a pleasing layout around communal service buildings, is one way in which the lowest income worker can be provided with reasonably good housing. This type of dwelling would probably be let on a weekly or monthly tenancy.

Clearly, however, the success of such a scheme would depend on the co-operation and support of the local authority.

Papuan Attends Forestry School

Recently a nineteen-year-old Papuan forestry field assistant, James Maraba, arrived at the Fiji Forestry Training School to take a one-year course. It is expected that on completing this he will be appointed to the staff of the forestry school to be established by the Administration at Bulolo for the training of Papuan and New Guinean forest rangers.

Pepper Growing For The Smallholder

(continued from page 33)

bags are removed and normal drying is allowed to take place, the pepper being completely dried in the course of a further twelve hours. The fire is extinguished at the end of this period, and the pepper is allowed to cool overnight. Finally, the "corns" are separated from the stalks by beating and winnowing, and the pepper is then ready for export.

WHITE PEPPER: For the preparation of white pepper the ripe, bright-red berries only are harvested. Unless they are absolutely ripe it is very difficult to remove the husk, or pericarp, so the regularity and care with which harvesting is conducted are important factors in white pepper production. On the other hand the berries should not be allowed to ripen too much, as these are likely to fall off and become lost.

The traditional method of decorticating the ripe berries is to place them in jute bags which are left in running water for one to two weeks. The skins become soft and can then easily be removed by treading the berries underfoot in running water. The smooth white kernels are given a final washing and then dried as quickly as possible on mats in the sun.

Another method of removing the skins consists of allowing a heap of ripe berries to ferment or "heat up" for two to three days. The skins can be rubbed off quite easily under running water after this treatment. Even small quantities can be dealt with in this manner, but the importance of selecting only the ripe berries cannot be overstressed; underripe berries are hardly affected by the fermentation process.

Yields And Price Relationships

The yields per vine vary greatly according to the age of the plant, where it is grown and how it is looked after. Individual mature vines may produce from less than 1 lb. to more than 12 lb. of dry pepper, but a fair average might be considered to be 3 lb. At this rate an acre of pepper vines would produce, under average conditions, about 17 cwt. of dried black pepper per annum, which at present-day prices (3s. per lb. c.i.f. London, early 1961) would realize about £stg.240.

The yield of black pepper from 100 lb. of fresh berries is usually about 36 lbs., while that of the white is about 24 lb. This means that the selling price of white pepper must be at least one and a half times as much as that of the black in order to make it profitable to produce.

In recent years the price ratio has not always favoured the producer of white

pepper, and there has been a tendency for more black pepper to be produced in proportion to the white. Such a trend may partly be explained by the growing demand for black pepper from the canned meat trade, particularly in the United States.

Quality

Good-quality black pepper is of fairly uniform size and free from dust, stalks, leaflets, etc. This condition is achieved by garbling or winnowing the berries by hand in a flat wicker basket—or it may be done with the aid of machines.

Cleanliness and uniformity of size are even more important in white pepper; and the very small, dried, immature fruits known by the trade as "pinheads" are particularly disliked. Such material as pepper husks and pinheads are suitable only for distillation.

A recent valuation by a London broker of Fiji-produced sundried black pepper indicated a price 2d. or 3d. lower than that currently quoted for Borneo pepper. The difference in price was attributed to the indifferent method of preparation and not to the inherent quality of the pepper, which was considered to be good.

Pungency And Flavour

The active constituents which provide the pungency of pepper consist of a group of alkaloids, of which piperine and chavicine are the most important. The flavour and aroma are associated with the presence of an essential oil. Small quantities of this essential oil of pepper — obtained by distillation — are used by scent makers, and it was once a common ingredient of medicines.

REFERENCES

Brown, E., and Reader, D. E. (1952): Colonial Plant and Animal Products, Vol. III, No. 3, p. 195.

Cooper, H. Stonehewer (1888): "Islands of the Pacific."

Parham, B. E. V. (1954): Agric. Journ., Fiji. Vol. 25, Nos. 3-4, p. 99.

"Plantation Crops" (1960): Commonwealth Economic Committee.

Sandford, H. (1952): Malayan Agric. Journ., Vol. 35, No. 4, p. 208.

Tropical Products Institute (1957): Private communication.

Ward, J. F. (1960): "Black Pepper", Ministry of Agriculture and Lands, Jamaica.

PICTURE CREDITS

Acknowledgement is made for illustrations reproduced in this issue as follows: Front cover, Ronald Powell, Cook Islands; pp. 20, 21, 27, 31, 32, 33, 42 (bottom), 53, 54, 55, Fiji Official; 22, Angus McBean; 23, 24, 58, 59, Liliane Geisseler; 25 (top), Hollingsworth, Pago Pago, American Samoa; 38, 39, 40, Arthur Swinfield; 41 (top left), 43 (top right), New Zealand Official; 41 (top right), 42 (top left), 43 (bottom), 44, Australian Official; 45, 46, 47, 61, 62, 63, Netherlands Official; 60, Leonie Martin.

PACIFIC READING

Material in this section is contributed by the South Pacific Commission Literature Bureau. Any enquiries relating thereto should be directed to Box 5254, G.P.O., Sydney, Australia.

Literature Bureau Publications

Nature Study Book for Island Schools. A simple nature study text, specially written for the Pacific area and now being prepared for publication by this Bureau, will, we feel, be of considerable interest to many island teachers. The manuscript of this book, entitled *Nature Study Book for Village Schools in Tropical Regions* has been prepared by Mrs. Sheila Jamieson, already well known for her widely-used publication *A First Hygiene Book*. Written in simple English and lavishly illustrated with many excellent line drawings (also prepared by the author), this book is intended to provide children in the primary classes with a simple but factual introduction to the subject. Topics covered include: Living and Non-Living Things; Plants, Leaves, Flowers, and Seeds; Sea Anemones; Coral and Coral Animals; Jellyfish; Starfish; Shells; Insects; Fishes; Reptiles; Birds and Mammals. Attractively produced with a two-colour cover, this book contains 51 pages measuring 10″ x 7½″. The pages have been bound with a spiral wire coil which enables the book to be opened out flat. The cover and two sample pages are shown in the accompanying illustration.

It is anticipated that this book will be available in about two months time, the price being A.3/- per copy, with a discount being granted on orders for 12 or more copies. All enquiries should be made to the Literature Bureau, Box 5254, G.P.O., Sydney, Australia.

New Agricultural Booklets. Two further titles—*Grow Good Arabica Coffee* and *Make Good Coffee*—in the series of simple agricultural extension booklets are now being produced on behalf of the Department of Agriculture, Stock and Fisheries, Port Moresby. Written in simple narrative style and illustrated with clear line drawings, both books have been produced in English, Motu, and Pidgin editions and are intended for use at village level. *Grow Good Arabica Coffee* describes the correct methods necessary for the successful growing of this crop; selecting, clearing, and marking out the land, planting the shade trees, growing the coffee seedlings in a nursery, and finally, transplanting the seedlings. *Make Good Coffee* deals with the proper processing of the harvested coffee beans to ensure a top-grade product, and is intended as a guide to both *Robusta* and *Arabica* coffee growers.

A specimen copy of the English version of each book is available on request from the Literature Bureau, Box 5254, G.P.O., Sydney, N.S.W., Australia. Previous titles in this series are: *Let's Grow Peanuts; Let's Make Good Copra; Grow Good Coconuts;* and *Grow Good Robusta Coffee.*

Books About the Pacific

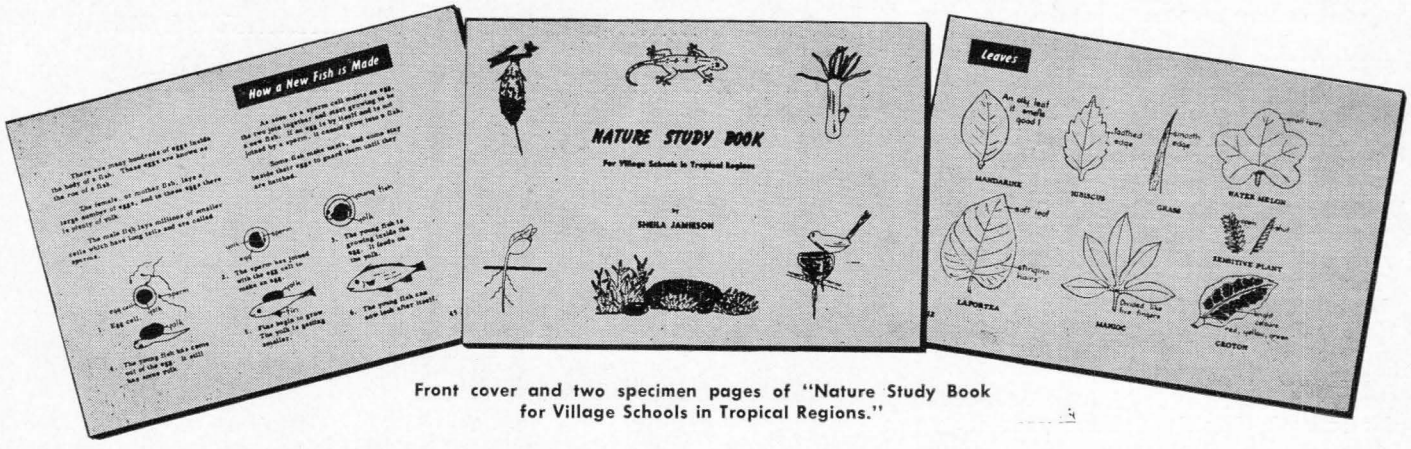
It is good to see the increasing number of books about the Pacific now appearing which are suitable for Pacific islands schools and libraries. The total number would still only fill a rather small bookshelf, but only a few years ago one was hard put to it to find anything at all. Several of the new books are listed below and once more we remind readers of this journal that the supply of such books will inevitably be directly related to demand; only if people of goodwill will devise ways and means of making them available in the islands and getting them into the hands of potential readers (not necessarily free of charge!) will the supply increase and the price decrease.

Houses. Renata Cochrane. Melbourne: Oxford University Press. 1961. pp. 28. A.4/-.

In very simple English, mostly in the present tense, the author describes typical island houses in Papua, the Trobriand Islands, Fiji, the Gilbert Islands, the Cook Islands, and Samoa. In each case the story is told by an islander speaking in the first person. The narrator not only describes the kind of house she lives in, and how it is built, but in the course of her tale tells something of the daily life of her family. There are attractive sketches of the houses described. This book should make most useful class reading in the social studies lessons in the primary school, and island adults may enjoy it too. It is one of the publisher's Life in the Pacific series published at 4/- each. Other volumes in the series are *Canoes* by Percy Cochrane, and *Tapa Cloth* by Peter Livingston.

Tico Et Mareta. J. Hugonot and S. Krauser.

This first reading book has been specially prepared and printed by the Department of Education in Tahiti to introduce Tahitian children to reading in the French language. Educationists in other territories will recognise the threefold problem involved: the young pupil must face simultaneously the task of mastering the mechanics of the reading



Front cover and two specimen pages of "Nature Study Book for Village Schools in Tropical Regions."

process; of associating printed symbols with new non-Tahitian sounds; and acquiring a new non-Tahitian vocabulary and language structure.

In tackling these problems the book presents many interesting features. Firstly, it is of course designed specially for use by children in French Polynesia; that is to say the vocabulary, illustrations, and situations are all based on the needs and experiences of a child in French Polynesia, not somewhere else. Secondly, although the purpose of the book is to teach reading, the authors insist on the supreme importance of oral work and emphasise the necessity of preceding each lesson with adequate oral preparation; in French Polynesia this is supported by special radio programmes.

The method used in the book combines several well-known and proven techniques: a syllabic method introduces the phonic elements of the work, but since meaning rather than mechanical verbalism is all-important, appropriate sentences are quickly introduced; the relation between particular symbols and sounds is fixed in the mind by associating them with key illustrations of appropriate familiar objects. It is emphasised that this is a book designed to introduce reading; it is not a systematic language teaching book. But because the pupil is learning to read in a foreign language, educationists in other parts of the Pacific faced with this problem may be interested to see it and to examine its method.

A second book in the series has also been issued, taking pupils on towards the stage of reading quite long passages of narrative.

VAGI AND VARO. Percy Cochrane. Melbourne: Oxford University Press. 1961. pp. 56. A.5/6d.

This is the story of two children in Papua, written by Percy Cochrane, who has lived there for many years and knows his subject intimately. The story is told in fiction form and depicts the life of Papuan children today, in which some of the old customs are still observed, some are changing or passing, and there are many contacts with modern life. The story is the best thing of its kind I have seen, and provides excellent social studies material for any primary school wishing to know something about life in Papua-New Guinea. It would be a pleasure to use this book with a group of children in some other island; I feel sure they would enjoy it and would certainly learn a great deal in comparing their own daily life with that of the children depicted in it.

One small comment—which is no criticism of the book but which should perhaps be made for the sake of those who live far from bookshops—is that although the English used is quite simple and easy, it is not specially intended for those for whom English is a second language.

A FAMILY IN SAMOA. W. G. Moore. London: Hulton Educational Publications. 1961. pp. 82. A.11/3d.

This new book describes life in Samoa today. The author acknowledges the assistance of Mr. R. F. Rankin who lives in Samoa and has taught for many years in Samoan schools, so accuracy is assured. The book is written in a directly descriptive style rather than in the narrative fiction style used in "Vagi and Varo" reviewed above, and is profusely illustrated with excellent and up-to-date photographs. The English is quite simple and should be easily manageable by top classes in primary schools. The price of the book may militate against its use as a classbook but every school library should have a copy.

FARMERS OF THE PACIFIC ISLANDS. T. F. Kennedy. Wellington: A. H. & A. W. Reed. 1961. pp. 40. Price Stg. 6/-.

This book describes typical village farming methods in Tonga, Samoa, and the Gilbert Islands. It also describes how phosphate is obtained in Nauru, why it is important, and how it is converted into fertilizer. The book is attractively produced in large page size and is illustrated on every page with clear and accurate line drawings. It is an excellent addition to the material available to island schools for it not only describes actual agricultural practices but fits this description into the wider one of the daily life and the social organization of a village as it is related to farming. It does this in terms and at a level which school children can well understand and enjoy. The author has taught in schools in Tonga and the level of the book is well suited to the needs of island schools either as a pupils' book at upper primary level or as a teachers' source book.

ISLANDS OF THE SOUTH PACIFIC. R. G. Ward. London: Educational Supply Association. 1961. pp. 104. Stg. 8/6d.

This book is almost entirely about Fiji and Samoa; the author is Lecturer in Geography in the University of Auckland. Although the book is really intended for children in schools in England, New Zealand, etc., its simple and straightforward language should make it equally useful for Pacific islands schools. Its subject matter is the physical, social, and economic characteristics of Samoa and Fiji. Although a narrative style is used the book successfully avoids that superficial "sight-seeing" approach which, in some books, while perhaps arousing the reader's interest gives him all too little solid information. This book provides a thorough and sympathetic picture of life in the islands

today; the style of writing is attractive and never becomes dry or over-didactic. Obviously a book of this length and at this level cannot be a complete study but the author takes his readers seriously and wastes none of their time. Typographical arrangements are very good and there are 69 excellent photographs and diagrams. The book is one of the the publisher's series "How People Live in Other Countries". Other titles include Norway, Australia, the U.S.A., and South Africa. If other volumes are up to the standard of this one the series can be thoroughly recommended to island schools and libraries.

HEALTH EDUCATION IN BORNEO. J. Rackham. Kuching: Borneo Literature Bureau. 1961. pp. 50. Price unknown.

The sub-title of this book is "A Handbook for Primary School Teachers". Part One, which we have just received, is for classes 1-4. For each class the book gives an outline of the topics to be covered during a school year and this is followed by advice to the teacher on how to tackle the work. The topics are briefly outlined on the left-hand pages and on the right-hand pages are suggestions for class and teacher activities. This advice includes suggestions for practical work, blackboard work, simple poster making, and other activities both for the teacher and his class. The book shows a most refreshing appreciation of the level of "learning readiness" of children in the first half of the primary school; i.e. it avoids the lecture and chalk-and-talk approach with excessive emphasis on anatomy and physiology and such like; instead all its suggestions stress practical methods for encouraging formation of healthy habits and point out the value of learning by activity at this level rather than by passive listening. Although the book was produced in Borneo there is no subject matter in it which is not applicable to the Pacific; neither are the illustrations foreign to the Pacific; it is therefore most strongly recommended to the attention of people in this area. It should be emphasized that this is a book of practical suggestions to the primary school teacher about how to handle his subject. It is not a source book of information about the subject; but since many such source books are already available, and the teacher may be presumed to have had some training in the subject matter, this may be just the book we have been waiting for.

TEACHING STRUCTURAL ENGLISH. G. Pittman. Brisbane: Jacaranda Press.

Jacaranda Press has recently shown us the galleys of a new book by Mr. Pittman, with the above title. It is a detailed account of just what is meant by the structural approach to language teaching. The book should be of great value to those who have had considerable experience of teaching English as a second language but who, for one reason or another, have not had the time or the opportunity to examine very closely what is meant by and involved in the structural approach. The first half of the book contains a detailed exposition of the matter and indicates the rôle and importance of structural words in language teaching; there is then a short section on the implication of this for the language syllabus; and finally there is a long section of teaching methods when a structural approach is adopted. It will be remembered that Mr. Pittman was formerly Director of Education in Nauru and is now Director of the Language Institute, Victoria University of Wellington, New Zealand. Date of publication is not yet known but this book is certain to be of great interest to teachers of English in the Pacific.

Miscellaneous

VISIT OF LIBRARIES EXPERT. It is expected that Mr. H. V. Bonny, the UNESCO Libraries Expert, will arrive at the Literature Bureau early in April. Mr. Bonny will work with the Bureau for some six months during which he will visit several of the territories in the Pacific. His services have been made available to the Commission by UNESCO in connection with the Commission's work of assisting the development of libraries in the Pacific.

Many Pacific territories are planning to develop their library services, but of course resources are always limited. Thus, two important questions keep cropping up: (a) if there is not enough money to develop all kinds of library service (e.g. public libraries, school libraries, reference libraries, specialist libraries, etc.) which kind of service is it best to start on; and (b) would some degree of inter-territorial co-operation (e.g. in the training of island librarians or the sharing of some kinds of services) lead to worthwhile economies and so enable available resources to be more productively used?

Mr. Bonny will be enquiring into questions of this kind and in the course of his work will visit the New Hebrides, New Caledonia, Fiji, the two Samoas, Niue, and the Cook Islands, and perhaps some other territories. Mr. Bonny is an Australian who, as well as being a qualified librarian, has had many years practical experience in various parts of the world including Ceylon, Jordan, and Nigeria.

TEXTBOOK SEMINAR. As part of the programme of co-operation between the territories and the Commission in the education field, the Department of Education in Fiji is sponsoring a seminar on matters concerning textbooks. The seminar is likely to take place in June, and the Literature Bureau will be represented by its Director.

Among the topics to be included will be an examination of the relative rôles of teachers' resource materials, pupils' textbooks, and pupils' workbooks; factors affecting the production and supply of such materials; the local production of supplementary readers, conditions of supply of such materials.

Delegates at the Seminar will be restricted to members of the Fiji Education Department, but one of the items on the Agenda will be to discuss whether there would be value in holding a similar seminar at a later date on an inter-territorial basis.

Niue Personality Joins SPC

On January 29, Mr. Angus McBean arrived in Noumea to take up appointment with the social development section of the South Pacific Commission. He had been principal of Niue High School since it was established in 1958.

Mr. McBean, who is 52, is a New Zealander. He took his B.A. degree at Auckland University in 1933. After working for nine years in New Zealand as a journalist on daily newspapers, Mr. McBean left for Switzerland, where he spent eleven years on the staff of an international school. While there he became fluent in both French and German. During World War II he was an Attaché on the staff of the British Legation in Berne and the British Consulate in Geneva.

In 1953 he returned to New Zealand, where he spent four years teaching in secondary schools. Early in 1958 he was appointed the first principal of Niue High School, which today has a roll of 180 pupils. He took a keen interest in the welfare of young Niueans, and encouraged them to be proud of their own culture and traditions. He also helped the weavers of Niue to revive the dormant export industry in basketware, and organized a co-operative for them.*

* Mr. McBean gave an account of his activities in this field in an article entitled *Niue Women Run Flourishing Industry* which appeared in the *South Pacific Bulletin* for July 1961.—Editor.

Papuan And New Guinean Apprentices Score Well In Exams

Of the 212 Papuan and New Guinean apprentices undergoing trade training in the territory, 86% passed their 1961 annual examinations. This high percentage of passes compares most favourably with the apprenticeship results in Australia.

Included in the 181 successful apprentices were 33 fifth-year trainees, who are now eligible for their trade certificates. These certificates have been gained by 52 apprentices since the Native Apprenticeship Scheme was started in the territory in 1955. The Scheme now provides training in fourteen trades.

This year it is expected that around one hundred Papuans and New Guineans will start first-year apprenticeship training.

Health Education Officer Continues Territorial Visits

On January 26, Miss Leonie Martin, SPC health education officer, returned to headquarters after spending two weeks in the British Solomon Islands assisting the Protectorate's health education officer to prepare for the malaria eradication project to be carried out there under WHO auspices. It will begin on March 1 with a survey of houses on Guadalcanal Island.

On her way back to headquarters Miss Martin spent three days in the New Hebrides, where she had talks with local health authorities on the future of health education work in the territory. She also had discussions with the principal of the new Central Teachers' Training College to be opened shortly in Port Vila, Mr. D. F. L. Pritchard, on the inclusion of health education in the curriculum.

Miss Martin's next assignment was in Netherlands New Guinea, where she arrived on February 17. She is spending three months there assisting with three health education training courses. The first was a one-week course for senior staff on the principles and methods of health education. Two longer courses are now being held for field staff from villages—one for child welfare nurses, the other for male nurses. They are intended to serve as model courses for a continuing health education training programme.

Micronesians To Attend Nautical School in Philippines

Next June two Micronesians will leave the United States Trust Territory for the Philippines, where they will take a course at the Nautical School at Pasay City. They are Ywao Elanzo of the Marshall Islands and Kunio Ksau of Palau.

From now on two such scholarships will be granted annually by the United States Trust Territory to Micronesians wishing to train as deck officers or engineers.

Co-operative Builds Typhoon-Proof Houses On Ponape

As a result of the widespread destruction caused by the typhoons which in 1957 and 1958 swept Ponape, in the United States Trust Territory of Pacific Islands, typhoon-proof houses are now being erected on the island. They are being built by members of the Metalinim Housing Co-operative, formed specially for the purpose.

The houses, which are of concrete block construction with reinforced columns, cost between $400 and $700 (£stg.143 and £stg.200) depending on size. Of the initial batch of fifteen houses, two have been completed and the remaining thirteen are in the final stages of construction. Work has begun on sixty-three more. A waiting list of Ponape residents desiring membership in the Co-operative runs into hundreds.

South Pacific Commission Technical Papers

Copies of SPC Technical Papers, which as a general rule are published both in English and French editions, may be procured from the South Pacific Commission, Nouméa, New Caledonia, or G.P.O. Box 5254, Sydney, Australia. Except where otherwise stated, price per copy, post free by surface mail, is 2/- stg. (2/6 Aust., 2/3 Fijian, 30 cents U.S., 1 New Guinea guilder)*. The letters "E", "F", or "EF" in parenthesis at the end of each listing indicate present availability of titles in English and/or French editions.

NUTRITION

18. **Report on Nutrition Investigations by the South Pacific Commission in 1950.** November 1951. (EF).
22. **Chemical Composition of the Milk of New Hebridean Mothers.** F. E. Peters. February 1952. (F).
23. **Nutrition Research Conducted in New Hebrides during 1951.** Sheila Malcolm. April 1952. (E).
50. **Nutrition Investigation in New Caledonia.** Sheila Malcolm. October 1953. (E).
59. **Dietary and Nutritional Problems in the Pacific.** Dr. E. Massal. April 1954. (F).
63. **Diet and Nutrition in American Samoa.** Sheila Malcolm. August 1954. (E).
83. **Diet and Nutrition in the Trust Territory of the Pacific Islands.** Sheila Malcolm. July 1955. (E).
95. **Bibliography of the Nutritional Aspects of the Coconut.** F. E. Peters. September 1956. (EF).
100. **Chemical Composition of South Pacific Foods—An Annotated Bibliography.** F. E. Peters. January 1957. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (EF).
106. **Some Food Problems in the Pacific Islands.** H. S. McKee. May 1957. (EF).
113. **The Diet of Mothers and Children on the Island of Guam.** Sheila Malcolm. January 1958. (EF).
115. **The Chemical Composition of South Pacific Foods.** F. E. Peters. February 1958. (EF).
118. **Nutrition and the Papuan Child.** H. A. P. C. Oomen and S. H. Malcolm. April 1958. (8/- stg., 10/-A., 9/-F., $1.20, 4G.). (EF).

PUBLIC HEALTH

12. **Tuberculosis Investigations by the South Pacific Commission in 1950.** May 1951. (EF).
24. **A Survey of Leprosy on the Island of Nauru.** Dr. C. J. Austin. April 1952. (EF).
27. **A Survey of Leprosy in the British Solomon Islands Protectorate.** Dr. C. J. Austin. July 1952. (EF).
56. **Leprosy in Netherlands New Guinea.** Dr. Norman R. Sloan. April 1954. (EF).
57. **Leprosy in the Trust Territory of the Pacific Islands.** Dr. Norman R. Sloan. April 1954. (F).
62. **Leprosy in American Samoa.** Dr. Norman R. Sloan. July 1954. (E).
64. **Dental Conditions in School Children of American Samoa.** Dr. Raymond G. Neubarth. August 1954. (E).
67. **Ophthalmological Survey of the Trust Territory.** Dr. H. E. Crawford. September 1954. (E).
69. **Leprosy in Western Samoa and the Cook Islands.** Dr. Norman R. Sloan. October 1954. (E).
96. **Health Education in the South Pacific.** G. Loison and L. L. Keyes. November 1956. (EF).
131. **Dental Health in South Pacific Territories.** P. B. Cadell. August 1960. (EF).

MOSQUITO-BORNE DISEASES

17. **Conference of Experts on Filariasis and Elephantiasis, Tahiti: Summary of Proceedings.** September 1951. (EF).
33. **A Survey of Malaria in the British Solomon Islands Protectorate.** Dr. R. H. Black, November 1952. (EF).
60. **Some Aspects of Malaria in the New Hebrides.** Dr. R. H. Black. May 1954. (EF).
61. **Malaria in the Trobriand Islands.** Dr. R. H. Black. May 1954. (E).
65. **Annotated Bibliography of Filariasis and Elephantiasis.** September 1954. (5/- stg., 6/3A., 5/6F., $0.75, 2.50G.). (EF).
66. **Distribution of Filariasis in the South Pacific Region.** Dr. M. O. T. Iyengar. September 1954. (5/- stg., 6/3A., 5/6F., $0.75, 2.50G.). (EF).
68. **Malaria in the Torres Straits Islands.** M. Josephine Mackerras and Dorothea F. Sanders. October 1954. (E).
80. **Malaria Control and Research in Netherlands New Guinea.** Dr. R. H. Black. March 1955. (E).
81. **Malaria in the South-West Pacific.** Dr. R. H. Black. March 1955. (EF).
86. **Distribution of Mosquitoes in the South Pacific Region.** Dr. M. O. T. Iyengar. 1955. (8/- stg., 10/-A., 9/-F., $1.20, 4G.). (EF).
88. **Annotated Bibliography of Filariasis and Elephantiasis.** Part 2. Dr. M. O. T. Iyengar. January 1956. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (EF).
104. **Developmental Stages of Filariae in Mosquitoes.** Dr. M. O. T. Iyengar. May 1957. (EF).
105. **An Investigation on Filariasis in the Berau Region.** H. de Rook. May 1957. (EF).
109. **Annotated Bibliography of Filariasis and Elephantiasis.** Part 3. Dr. M. O. T. Iyengar. July 1957. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (EF).
110. **Enquete epidemiologique et entomologique sur la Filariose de Bancroft en Nouvelle-Caledonie et dependances.** M. Lacour et J. Rageau. (With Summary in English.) August 1957. (F).
117. **La repartition geographique des moustiques en Nouvelle-Caledonie et dependances.** J. Rageau. Mars 1958. (Available in French only.) (F).
119. **Enquete entomologique sur le Paludisme aux Nouvelle-Hebrides.** Jean Rageau et Guy Vervent. Janvier 1959. (Available in French only.) (F).
124. **Annotated Bibliography of Filariasis and Elephantiasis.** Part 4. Treatment. Dr. M. O. T. Iyengar. August 1959. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (E).
125. **Studies on the Epidemiology of Filariasis on Central and South Pacific Islands.** Elon E. Byrd and Lyle S. St. Amant. September 1959. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (EF).
126. **A Review of the Literature on the Distribution and Epidemiology of Filariasis in the South Pacific Region.** Dr. M. O. T. Iyengar. October 1959. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (E).
129. **Annotated Bibliography of Filariasis and Elephantiasis.** Part 5. Dr. M. O. T. Iyengar. June 1960. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (E).
130. **A Review of the Mosquito Fauna of the South Pacific.** Dr. M. O. T. Iyengar. July 1960. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (E).
132. **Summary Data on Filariasis in the Pacific.** Dr. M. O. T. Iyengar. August 1960. (EF).

TROPICAL CROPS

19. **Report on Copra Grading.** November 1951. (E).
21. **Note on the Mycoflora of Rice Seed in the Territories of the South Pacific.** Dr. F. Bugnicourt. January 1952. (F).
31. **Cocoa Plantation Management in Western Samoa.** D. R. A. Eden and W. L. Edwards. October 1952. (EF).
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PESTS AND DISEASES OF PLANTS AND ANIMALS

8. **Insect Pests in the Wallis Islands and Futuna.** F. Cohic. December 1950. (EF).

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9. **Report of Plant and Animal Quarantine Conference, Suva.** April 1951. (EF).
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116. **Contribution a l'etude des cochenilles d'interet economique de Nouvelle-Caledonie et dependances.** F. Cohic. Fevrier 1958. (Available in French only.) (F).
128. **Diseases and Biological Control in Rhinoceros Beetles.** Paul Surany. March 1960. (6/- stg., 7/6A., 6/9F., $0.90, 3G.). (E).

ECONOMIC CONDITIONS

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CURRENT RESEARCH

29. **Current Research in the South Pacific in the Field of Economic Development.** July 1952. (E).
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135. **Social Science Research in the Pacific Islands.** (Revised edition of T.P. 127.) June 1961 (E).

CO-OPERATIVES

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120. **A Guide to the Marketing of Copra in Primary Co-operative Societies.** C. G. Joannides. January 1959. (EF).
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123. **Co-operatives in the South Pacific.** (Report of the SPC Technical Meeting on Co-operatives held at Port Moresby July 21-August 1, 1958.) February 1959. (EF).

COMMUNITY DEVELOPMENT

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EDUCATION

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133. **Education Seminar for the South Pacific.** (Report of the SPC Education Seminar held at Brisbane, Queensland, Australia, November 16-27, 1959.) December 1960. (EF).

OTHER SUBJECTS

6. **A Preliminary List of Economic Plants of New Caledonia.** J. Barrau. July 1950. (EF).
7. **A Preliminary List of Plants Introduced into Tahiti.** July 1950. (F).
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